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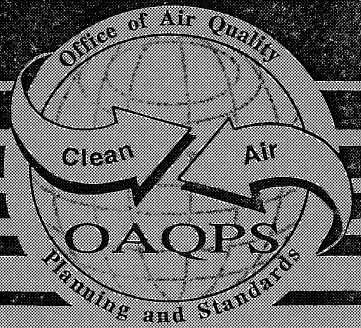
DRAFT -IMPLEMENTATION DOCUMENT FOR THE PESTICIDE ACTIVE INGREDIENT PRODUCTION NESHAP - (40 CFR 63, SUBPART MMM)



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Implementation Document for the Pesticide Active Ingredient Production NESHAP (40 CFR 63, Subpart MMM)

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What is the legal status of this guide?

The Office of Air Quality Planning and Standards (OAQPS) and the Office of Enforcement and Compliance Assistance (OECA) of the U. S. Environmental Protection Agency (EPA) have reviewed this document and approved it for publication.

When using this document, remember that it isn't legally binding and doesn't replace the final rule - "National Emission Standard for Hazardous Air Pollutants for Pesticide Active Ingredient Production" (published in the *Federal Register,* **6/23/99, 64 FR 33550**) or any State, local or tribal rules that may apply to your facility.

This document isn't intended, nor can you rely on it, to create any rights enforceable by any party in litigation with the United States. The EPA may change this document at any time without public notice.

This document includes only requirements from the final rule published in the *Federal Register* **6/23/99, 64 FR 33550.**

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Thank You

This draft document was prepared by a joint partnership among the Environmental Protection Agency (EPA, or we), State and local agencies for air pollution control, trade associations, and organizations who produce pesticide active ingredients. At the time of publication, the development team had the following members:

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We thank these people for their participation. Their technical insights, experiences, and suggestions were essential to this guide's development.

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Why should I use this implementation document?

This document can help plant owners and operators understand the ***Pesticide Active Ingredient*** (PAI) ***Production*** NESHAP (also known as Subpart MMM) by helping you determine **four** main things:

- if the rule applies to your plant and process
- what compliance options are available
- what to monitor, record, and report
- dates by which you must meet requirements

Is there anything I should know before using this document?

When using this document, remember that it **doesn't** replace the final rule but summarizes the requirements published in the final rule. You should keep up with new requirements printed after this date by periodically checking the *Federal Register* and the Code of Federal Regulations (CFR). You can download Federal Register notices by going to the Government Printing Office (GPO) website at *www.access.gpo.gov/su_docs/aces/aces140.html*.

Keep informed of rule changes, if any, *by checking the Federal Register*.

We've included a copy of the final rule in **Appendix A** (as published in the *Federal Register*, **6/23/99, 64 FR 33550**), so you can reference the rule while using this document.

How do I get copies of this document?

You can get copies of this document in **four** ways:

- EPA's Unified Air Toxics Website (*www.epa.gov/ttn/uatw*). Look under Rules and Implementation, pesticide active ingredient, or *www.epa.gov/ttn/uatw/pest/pestpg.html*
- Library Services Office, (MD-35), U.S. EPA, Research Triangle Park, NC 27711, or *www.epa.gov/natlibra/ols.html* (limited supply)

We want your feedback

To serve you better, we've included a survey on the usefulness of this document. If you'd like to participate, please fill out the survey on page 3 and return it to the address indicated. We'll keep your responses confidential if you desire, but use them to help us improve future documents.

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Survey on the Implementation Document for the Pesticide Active Ingredient Production NESHAP

Please help us gauge this document's usefulness by completing this short form. We'll keep your responses confidential if you desire, but use them to help improve future documents. **Check this box if you would like us to keep your responses confidential** ☐

1. What type of business do you work for? (check one of the following)

   Manufacturing ☐ Contractor ☐ Tribe ☐ Government (specify Federal, State, local) _____

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   Plant Operator ☐ Maintenance ☐ Plant Manager ☐ Environmental Staff ☐

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3. How did you hear about this implementation document? (check any that apply)

   Co-worker ☐ EPA TTN via dial up modem ☐ EPA TTN via the Web ☐ Other _____

Please check the box under the number that most closely shows your agreement with the following statements

1= Strongly Agree to 5 = Strongly Disagree

Statement	1	2	3	4	5	N/A
The document was timely.						
The document provides a good overview of the rule.						
The document provides the type of information my organization needs to comply.						
The document helped us achieve compliance more quickly than if we had developed our own.						
We have incorporated parts of this document into our own policy documents.						
The format of this document was well organized and easy to understand.						

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6. What would you **change** about this document (e.g. formats; excluding information or including things that you didn't see in the document)? _____

7. **Overall**, did you find this document to be:

   extremely useful ☐ very useful ☐ somewhat useful ☐ not useful at all ☐

8. **Other comments**: _____

Provide additional comment on the back of this form or on a separate sheet of paper.

Return survey to: ATTN: Pesticide Active Ingredient Implementation Contact, U.S. Environmental Protection Agency (EPA), Research Triangle Park (RTP) MD-12, Research Triangle Park, NC 27711, or fax (919) 541-2664

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Chapter 2 - What this Pesticide Active Ingredient rule covers - An Overview

Why was this Pesticide Active Ingredient (PAI) rule written?

The PAI rule was written to reduce hazardous air pollutant (HAP) emissions and achieve the environmental benefits intended by the Clean Air Act (CAA) of 1990.

The rule applies to all organic HAP emissions. It also applies to chlorine and hydrogen chloride emissions. Our research indicates that the **primary** organic HAP emissions from PAI production include **all** of the following:

- toluene
- methanol
- xylene
- methyl chloride
- methylene chloride
- ethylene dichloride
- carbon tetrachloride
- acetonitrile

How do I know if I'm subject to this rule?

You're subject to this rule if your plant meets **all** of the following:

- is a major source of HAP emissions
- manufactures at least one PAI
- is not exempt

Definition. *Pesticide Active Ingredient* **means any material that is an active ingredient within the meaning of FIFRA section 2 (a); is used to produce an insecticide, herbicide, or fungicide end use pesticide, consists of one or more organic compounds; and that must be labeled in accordance with 40 CFR part 156.**

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Note: PAIs are typically described by North American Industrial Classification System (NAICS) codes 325199 and 32532; these materials are identified by product classification codes 01, 21, 02, 04, 44, 07, 08, and 16 in block 19 on EPA form 3540-16, the Pesticides Report for Pesticide-Producing Establishments.

You're **not** subject to this rule if you have an enforceable limit on your facility by the compliance date of Subpart MMM that restricts your emissions to <10 tons/yr of any single HAP and <25 tons/yr of all combined HAPs (i.e, in such cases, your facility wouldn't be classified as a major source under §63.2 of the General Provisions).

Your facility is a major source if it can potentially emit ≥10 tons/yr of a single HAP or ≥25 tons/yr of all HAPs.

If your facility is major source, some PAI operations at your facility may still be exempt from the rule. These exemptions are listed at the end of this chapter.

For a list of regulated HAPs, check our Unified Air Toxics Website (UATW) at: *http://www.epa.gov/ttn/uatw/188polls.txt*

What is an affected source?

Under Subpart MMM, an affected source includes **all** of the following [§63.1360(a)]:

- the facility-wide collection of pesticide active ingredient manufacturing process units (PAI process units) that process, use, or produce HAP

Definition. *Process unit* means the equipment assembled and connected by pipes or ducts to process raw materials and to manufacture an intended product.

- waste management units, heat exchange systems, and cooling towers associated with the PAI process units described above

An affected source includes **all** of the following types of emission points [§63.1360(a)]:

- process vents
- storage vessels
- wastewater systems
- equipment leaks

*See **Chapters 3 through 6** for details about your compliance options for these emission points.*

A **new** affected source includes **either** of the following [§63.1360(b)]:

- an affected source, as described above, for which construction or reconstruction started after November 10, 1997, or
- any single PAI process unit that meets **all** of the following criteria:

- isn't part of a process unit group

Definition. *Process unit group* means a group of process units that manufacture PAIs and products other than PAIs by alternating raw materials or operating conditions, or by reconfiguring process equipment. Only process equipment that has been or could be part of a PAI process unit, because of its function or capacity, is included in a process unit group.

- has the potential to emit 10 tons/yr of any one HAP or 25 tons/yr of combined HAP
- construction started on the unit after November 10, 1997

Four examples of changes to a facility and the type of standards that would apply are as follows:

- If you **add** a single PAI process unit at an existing major source and the potential to emit for that process unit (with or without enforceable limits) is less than the 10 and 25 tons/yr thresholds, your process unit becomes part of the existing source and is subject to **existing** source standards. See the Summary of Public Comments and Responses (EPA-453/R-98-011), **Section 3.6**, for more information [available for download on the UATW Pesticide Active Ingredient Page].

- If you **add** a PAI process unit to a facility that did not previously contain a PAI process unit and you create a process unit group, then your PAI process unit is subject to the existing source standards of the MACT rule that applies to the primary product of the process unit group if construction of the equipment in the process unit group started prior to November 10, 1997 and it has not been reconstructed. See "How is nondedicated equipment regulated?" for more information.

- If you **add equipment** to an existing PAI process unit, the PAI process unit remains subject to the existing source standards.

- If you **replace equipment** in an existing affected source, the affected source remains subject to the existing source standards unless the replacements meet the definition of reconstruction.

When do I need to comply?

If your facility is an existing affected source, you must comply by **6/23/02**, which is three years after the rule's effective date of 6/23/99 [§63.1364(a)]. The effective date is the date the final rule was published in the Federal Register. An extension of up to 1 additional year may be requested if time is needed to install controls, and it must be submitted 120 days before compliance date.

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If your affected source is new or reconstructed, you must comply upon startup of your operations or on 6/23/99, whichever is later. [§63.1364(b)] See Figures 2-1 and 2-2 for detailed compliance timelines.

Some additions to an existing source may be subject to existing source standards and others may be subject to new source standards. See "What is an affected source?" for more information.

If your affected source is subject to more than one standard and you choose to comply with the other standard as allowed by Subpart MMM, your affected source will need to comply by the compliance date of that standard. See "What provisions in this rule overlap provisions in other rules?" for more information.

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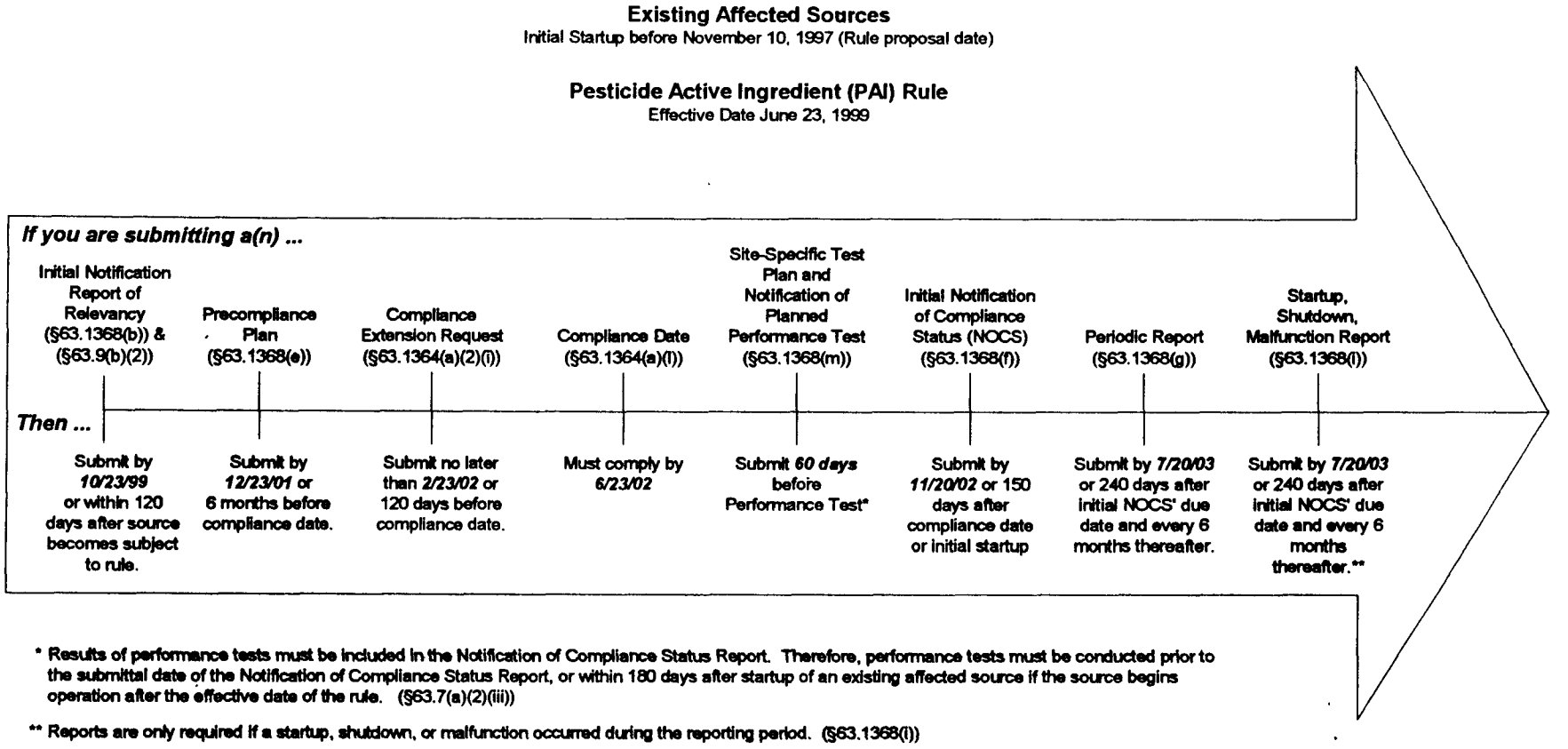

Figure 2-1. Compliance Timeline and Reporting Requirements for Existing Affected Sources.

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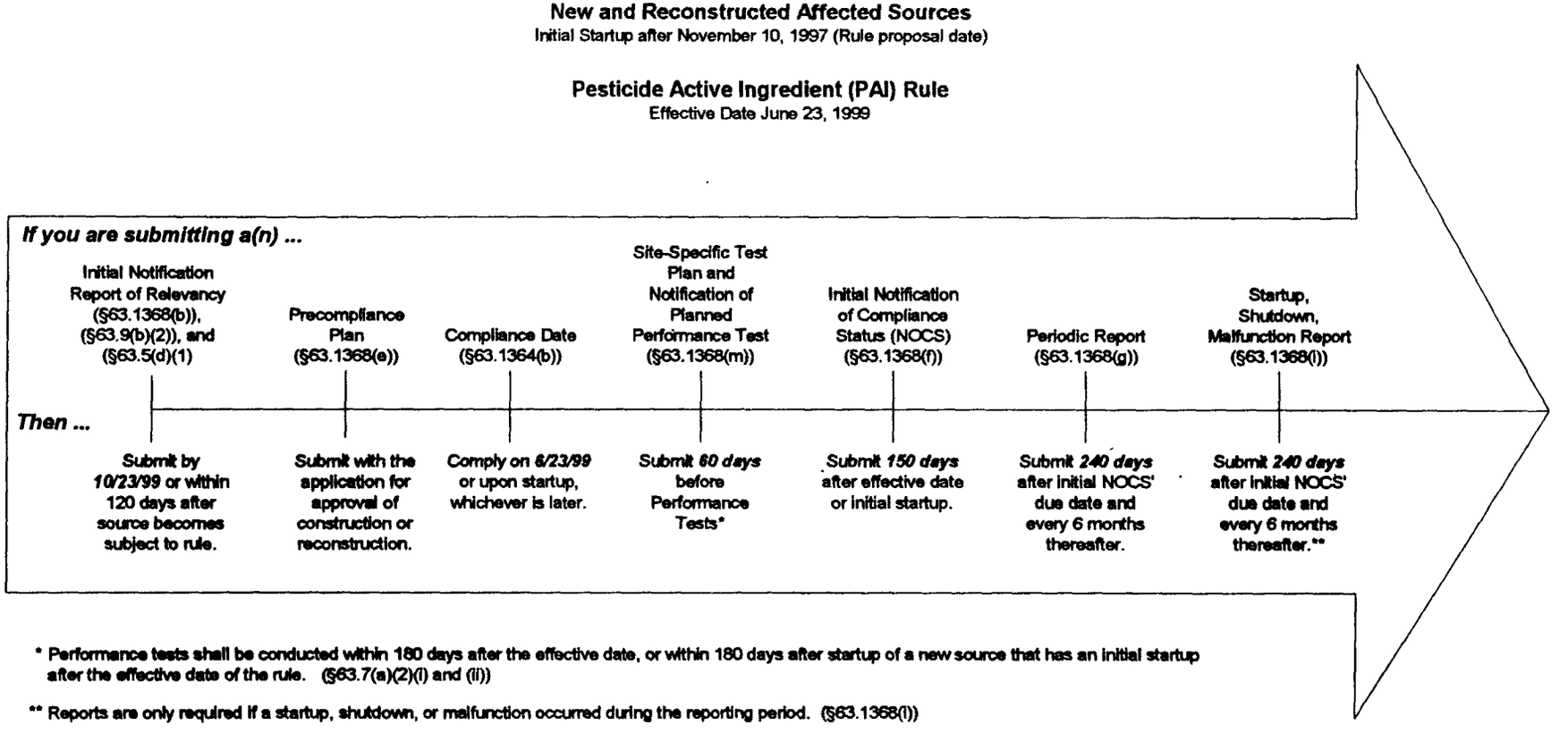

Figure 2-2. Compliance Timeline and Reporting Requirements for New and Reconstructed Sources.

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What pesticide active ingredients are subject to the rule?

Subpart MMM applies to only a fraction of all materials that are registered as active ingredients within the meaning of Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) section 2(a). The materials subject to this rule depend on how they are **used**. You're subject to Subpart MMM if your material is all of the following:

- meets all of the conditions in the definition of PAI in §63.1361 of Subpart MMM (see **page 5** for the definition of PAI)
- is "**primarily used**" as a PAI

Procedures to determine primary use are described below.

Your materials aren't subject to Subpart MMM if they meet **any** of the following criteria:

- inorganic compounds
- used to produce disinfectants, rodenticides, water purifiers, or any other end-use pesticide product that's not also used to produce an insecticide, herbicide, or fungicide end-use pesticide product

How does "primary use" differ from "primary product"?

The concepts of primary use and primary product serve the following purposes:

- **Primary use** refers to the predominant end-use application of each material that may be used for both PAI and non-PAI purposes. Your primary use will determine if the material is a PAI that's subject to this rule.
- **Primary product** refers to the predominant product produced in a process unit group, and is used to determine the applicable requirements for all PAI process units in the group.

How do I determine the primary use of a product?

Your product is "primarily used" as a PAI if more than 50 percent of the projected annual production of the product in the 3 years after June 23, 1999, or startup, whichever is later, will be used as a PAI [§63.1361].

If the initial primary use of your product is for non-PAI purposes, you must re-evaluate the primary use if there is reason to believe it has changed.

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If the primary use changes from non-PAI to PAI, then the process unit producing that material becomes a PAI process unit and is subject to Subpart MMM, unless it is already subject to 40 CFR part 63, Subpart F (HON). If your process unit is subject to Subpart F, you must follow the Subpart F requirements, not those in Subpart MMM.

Recordkeeping of the PAI and non-PAI uses is required if non-PAI uses are the primary use.

What is a pesticide active ingredient (PAI) process unit?

A PAI process unit produces **either** of the following [§63.1361]:

- a PAI
- an integral intermediate

Note: Integral intermediate is defined on page 13. You may designate as a PAI process unit any process unit that produces an intermediate that is not an integral intermediate [§63.1360(g)]

Typically, each integral intermediate process and the associated PAI process are separate PAI process units. However, if 100 percent of an integral intermediate is used in the production of a single PAI, you may consider the entire system to be one PAI process unit [from the definition of process in §63.1361].

A PAI process unit **isn't** linked to any specific piece of equipment. Rather, it applies to whatever equipment is being used to produce a particular product. For example, if you have two distinct process "lines," both producing the same product, they constitute one PAI process unit. Alternatively, you may have "nondedicated" equipment that can be configured in different ways to make different products as needed. In this case, each time you make a particular PAI, you may use a different reactor, centrifuge, or other equipment, but it's the same PAI process unit. Similarly, if the same equipment is used to produce different PAIs at different times, it constitutes a different PAI process while it is used to make each of the products. When you use the equipment (in the same configuration or a different one) to produce a non-PAI, the equipment does not constitute a PAI process unit.

See "how is nondedicated equipment regulated," for more information.

A **PAI process unit** can include **any** of the following [§63.1361]:

- the PAI process (i.e., the processing equipment such as mixing vessels, reactors, and distillation units)
- associated storage vessels, as determined under §63.1360(f)
- connected piping and ducts
- open equipment used to convey and store liquids, as defined under §63.1362(k)

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- associated components such as:
  - pumps
  - compressors
  - agitators
  - pressure relief devices
  - sampling connection systems
  - open-ended valves or lines (process fluid on only one side)
  - valves with process fluid on both sides
  - connectors
  - instrumentation systems

What is an integral intermediate?

An **integral intermediate** is a compound that meets **all** of the following criteria [§63.1361]:

- it's further processed or modified in one or more additional chemical reaction steps to produce a PAI
- 50 percent or more of the annual production is used in on-site production of one or more PAIs
- it's not **stored** before the next reaction step (see next paragraph)
- it's not already subject to 40 CFR 63, Subpart F

An intermediate is **stored** if it's discharged to a storage vessel, and it meets **any** of the following conditions [§63.1361]:

- you shutdown the processing equipment that discharges the intermediate to the storage vessel **before** you start up the processing equipment that withdraws the intermediate from the storage vessel
- you store the intermediate in the vessel for at least 30 days before it's used to make a PAI
- the equipment that produces the intermediate is located in a separate building (or processing area) than the equipment that uses the intermediate as a feedstock. The control equipment can't be shared by the two processing areas

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How is "nondedicated" equipment regulated?

The discussion under "What is a PAI process unit," explained that a PAI process unit is defined based on the product being **produced**, regardless of the equipment.

However, you may use the same equipment to produce different products (both PAIs and other types of compounds) at different times, or there may be overlap of at least some of the equipment used to make different products. For this document, this equipment is referred to as "**nondedicated**" equipment, and in some cases Subpart MMM allows you to comply with a different MACT rule when you use such equipment to produce a PAI.

Typically, you must comply with the requirements of Subpart MMM for each PAI process unit. However, for PAI process units that are comprised of **nondedicated** equipment, you may determine applicability based on the following alternative procedure [§63.1360(h)]:

The purpose of this alternative for nondedicated equipment is to minimize the possibility for overlap between Subpart MMM and other MACT standards (e.g., pharmaceuticals, polymers and resins, etc.) for equipment used in multiple process units.

① First, categorize the nondedicated equipment into one or more **process unit groups** (see the definition of process unit group)

② Then, determine the **primary product** for each process unit group (see note below)

③ Finally, for each PAI process unit within a process unit group, you may elect to comply with either Subpart MMM or another applicable MACT rule under **either** of the following conditions:

- if **any** product produced in the process unit group is subject to the pharmaceuticals MACT rule (Subpart GGG of 40 CFR part 63), you may elect to comply with Subpart GGG [§63.1360(h)(1)]
- if the **primary** product of a process unit group is a material that's subject to another MACT rule on June 23, 1999, or date of startup, whichever is later, you may elect to comply with that other subpart [§63.1360(h)(2)].

Note: Your primary product is the product you expect to produce for the greatest operating time in the 5-year period following the compliance date or the initial startup of the process unit group, whichever is later. Alternatively, if you expect the operating time to be the same for two or more process units, your primary product is the product that you expect to produce the greatest amount of on a mass basis [§63.1360(h)(3)].

This alternative does not address situations in which the primary product of a process unit group is a PAI, and the other product(s) are not limited to pharmaceuticals. In these situations, you must consult the rule(s) that apply to any other products to determine the requirements that apply when you use the equipment to produce those products.

Exceptions to the Subpart GGG provision are listed in §63.1360(h)(1).

How do I know if a storage vessel is part of a PAI process unit?

In general, your storage vessel is considered part of the process unit that either supplies the greatest input to the storage vessel or uses the greatest output from the storage vessel. If this process unit is a PAI process unit, the storage vessel is subject to Subpart MMM [§63.1360(f)(2)].

Exceptions to this general rule are described in **Chapter 4** for **all** of the following types of storage vessels:

- storage vessels in tank farms
- storage vessels that have equal input to (and/or output from) two or more processes
- storage vessels for which the use varies or changes
- storage vessels that are subject to existing MACT standards

These procedures are essentially the same as those in the HON.

If the storage vessel is already subject to another 40 CFR part 63 rule on June 23, 1999, the storage vessel will belong to the process unit subject to the other rule [§63.1360(f)(1)].

What requirements apply during periods of startup, shutdown, and malfunction?

You must comply with the emission limits in Subpart MMM at all times, except during periods of startup, shutdown, and malfunction if **all** of the following apply [§63.1360(e)(1)]:

- the startup, shutdown, or malfunction prevents you from complying with any limit that otherwise applies
- you follow the procedures in your startup, shutdown, and malfunction plan as specified in §63.1367(a)(3)
- you submit reports of periods of startup, shutdown, and malfunction as specified in §63.1368(i)

You may **not** shut down equipment used to control emissions if the shutdown would cause emission limits to be exceeded, except in **either** of the following circumstances [§63.1363(e)(3)]:

- the control equipment is malfunctioning

- the control equipment would be damaged as a result of a malfunction in the PAI process unit.

Note: During a startup, shutdown, or malfunction, you are required to implement, to the extent reasonably available, means to prevent or minimize excess emissions. You must describe the measures you'll take to minimize emissions (e.g., identify control devices, work practices, pollution prevention measures, etc.) in your startup, shutdown, and malfunction plan [§63.1363(e)(4)].

What provisions in this rule overlap provisions in other rules?

Your options in the event that, for a given PAI process unit, the applicability of Subpart MMM overlaps with another regulation **after the compliance date of Subpart MMM** are as follows:

If, for the following emission point...	Subpart MMM overlaps with the following rule...	Then ...[a]
All emission points	Other MACT rules in 40 CFR part 63 (e.g., the HON, pharmaceuticals, etc.)	• Choose, to the extent the subparts are consistent, under which subpart you'll maintain your records and reports • For 40 CFR 63, Subpart A (General Provisions) check Table 1 of Subpart MMM final rule to determine which Subpart A requirements apply to your emission point
Equipment leaks	Subpart I in 40 CFR part 63	Comply with **either** the provisions of Subpart MMM or the provisions of Subpart H of 40 CFR part 63
Storage vessels (Group 1 and 2)	Subpart Kb of 40 CFR part 60 [NSPS]	Comply **only** with the provisions of Subpart MMM
Process vents	Subparts III, NNN, or RRR of 40 CFR part 60 [NSPS]	Comply **only** with Subpart MMM **if** the process vent subject to the other subpart is controlled to 98 percent. Otherwise, comply with both Subpart MMM and Subparts III, NNN and RRR as applicable.
Process vents, equipment leaks, waste management units	Subparts AA, BB, and CC of 40 CFR parts 264 and 265 [RCRA]	Comply **either** with the monitoring, recordkeeping, and reporting requirements in Subpart MMM, or the other subparts. However, you must report **all** excursions as required in §63.1368(g) of Subpart MMM
Wastewater streams	40 CFR parts 260 through 272 [RCRA]	Comply with whichever rule has the more stringent control, testing, monitoring, recordkeeping, and reporting requirements

- Identify which subpart you've chosen to comply with in your Notification of Compliance Status Report as required under Subpart MMM. For wastewater streams, keep records of the information used to determine which requirements were the most stringent and submit the information to the Administrator if requested to do so.

Note: The applicability requirements described in the section "How is nondedicated equipment regulated?" do not constitute overlap because no other rule applies to the PAI process units within the process unit group. However, for some PAI process units in a process unit group, Subpart MMM specifies that compliance with provisions in another MACT rule may be used to demonstrate compliance with the requirements of Subpart MMM.

What is exempt from the rule?

Section 63.1360(d) specifies that the rule **doesn't** apply to **any** of the following:

- research and development facilities
- PAI process units that are subject to 40 CFR 63, Subpart F
- ethylene production
- stormwater from segregated sewers
- water from fire-fighting and deluge systems, including testing of such systems
- spills
- water from safety showers
- noncontact steam boiler blowdown and condensate
- laundry water
- vessels storing materials that contain no organic HAP or contain organic HAP as impurities only
- equipment (e.g., flanges, valves, pumps, etc.) intended to operate in organic HAP service for less than 300 hours during the calendar year. (However, you must keep a list of such equipment.)

In addition, under §63.1361, the following **aren't** considered to be part of the PAI process unit:

- formulation of pesticide products
- QA/QC laboratories

What process vents are covered?

Subpart MMM covers all process vents that:

- are part of processes at an affected source
- emit organic HAP and/or chlorine (Cl_2) and hydrochloric acid (HCl)
- are not exempt

All covered process vents (new or existing) are called either "Group 1" process vents or "Group 2" process vents.

Covered process vents are in **Group 1** and are subject to controls if **any** of the following apply [§63.1362(b)(2)(i), (b)(3)(i), (b)(4)(i), (b)(5)(i)]:

- the collective uncontrolled organic HAP emissions from all of the vents in the process are greater than 0.15 Mg/yr
- the collective uncontrolled HCl/Cl_2 emissions from all of the vents in the process are greater than 6.8 Mg/yr.

Covered process vents that do not meet the definition of Group 1 process vents are called **Group 2** process vents. Group 2 process vents do not require controls, but you must calculate the uncontrolled emissions for these processes and monitor either the number of batches per year (for batch processes) or the operating hours per year (for continuous processes) to demonstrate that annual emissions are below the limit for Group 2 processes.

What process vents are exempt?

A vent **isn't** considered to be either a Group 1 or Group 2 process vent if the undiluted and uncontrolled emission stream released through the vent contains less than 20 ppmv HAP.

The definition of process vent in §63.1361 describes ways to determine the HAP concentration..

If your Group 1 process vents discharge to **any** of the following control devices, they're **exempt** from the initial compliance demonstrations, monitoring provisions, and associated recordkeeping and reporting **requirements under Subpart MMM** [§§63.1362(l), 63.1365(a)(4), and 63.1366(b)(1)(ix)(B)]. However, all

other Subpart MMM provisions apply for these processes (e.g., requirements to determine applicability and standards for storage tanks, wastewater, and equipment leaks).

- A boiler or process heater burning hazardous waste for which you've:
  - been issued a final permit for the boiler or process heater under 40 CFR part 270 and are complying with the requirements of Subpart H in 40 CFR part 266
  - certified compliance with the interim status requirements of Subpart H in 40 CFR part 266.
- A hazardous waste incinerator for which you've:
  - been issued a final permit for the incinerator under 40 CFR part 270 and you're complying with the requirements of Subpart O in 40 CFR part 264
  - certified compliance with the interim status requirements of Subpart O in 40 CFR part 265.
- A boiler or process heater with a design heat input ≥44 MW
- A boiler or process heater for which the emission stream is introduced with the primary fuel

What compliance options do I have for my Group 1 process vents?

At **existing sources**, compliance options are categorized by organic HAP emissions and HCl/Cl_2 emissions. One set of standards applies to individual process vents that meet certain criteria, and another set of standards applies to all of the other process vents within the process. Standards for **new sources** apply only to the sum of all process vents within a process.

Pollution prevention is another option for process vents at existing sources.

Compliance options are explained in greater detail below. A summary is available in **Table 3-1**.

TABLE 3-1. Compliance Options for **Process Vents**

If you have a(n)...	And your process vents are...	Then, for...	Your compliance options are...
Existing source	Group 1 for organic HAP (>0.15 Mg/yr)	each "large" vent	• reduce organic HAP emissions by ≥98 percent (Option 1) • reduce emissions to ≤20 ppmv as TOC (Option 2) • use a flare that meets the requirements of §63.11(b) (Option 3) • use the alternative standard (Option 4) • continue reducing HAP emissions by percentage achieved on or before 11/10/97, if that amount is ≥90 percent (Option 5)
		any individual vent or any combination of vents, excluding large vents	• reduce emissions to ≤20 ppmv as TOC (Option 2) • use a flare that meets the requirements of §63.11(b) (Option 3) • use the alternative standard (Option 4)
		the collective emissions from all vents, excluding large vents, not controlled by Option 2, Option 3, or Option 4	reduce HAP emissions by ≥90 percent (Option 6)
	Group 1 for HCl/Cl_2 (>6.8 Mg/yr)	any individual vent or any combination of vents	• reduce emissions to ≤20 ppmv (Option 7) • use the alternative standard (Option 8)
		the collective emissions from all vents not controlled by Option 7 or Option 8	reduce HCl/Cl_2 emissions by ≥94 percent (Option 9)
New source	Group 1 for organic HAP (>0.15 Mg/yr)	any individual vent or any combination of vents	• reduce emissions to ≤20 ppmv as TOC (Option 2) • use a flare that meets the requirements of §63.11(b) (Option 3) • use the alternative standard (Option 4)
		the collective emissions from all vents not controlled by Option 2, Option 3, or Option 4	reduce organic HAP emissions by ≥98 percent (Option 1)

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TABLE 3-1. (cont'd)

If you have a(n)...	And your process vents are...	Then, for...	Your compliance options are...
	Group 1 for HCl/Cl_2 (>6.8 Mg/yr and ≤191 Mg/yr)	any individual vent or any combination of vents	• reduce emissions to ≤20 ppmv (Option 7) • use the alternative standard (Option 8)
		the collective emissions from all vents not controlled by Option 7 or Option 8	reduce HCl/Cl_2 emissions by ≥94 percent (Option 9)
	Group 1 for HCl/Cl_2 (>191 Mg/yr)	any individual vent or any combination or vents	• reduce emissions to ≤20 ppmv (Option 7) • use the alternative standard (Option 8)
		the collective emissions from all vents not controlled by Option 7 or Option 8	reduce HCl/Cl_2 emissions by ≥99 percent (Option 10)
New or existing source	Group 2	the process	no control required, but recordkeeping is required to demonstrate compliance with the 0.15 Mg/yr threshold for organic HAP emissions and the 6.8 Mg/yr threshold for HCl/Cl_2 emissions

Organic HAP emissions for "large" vents - Existing Sources

Each process vent that meets **both** of the following conditions is subject to more stringent organic HAP controls than other vents:

- Uncontrolled organic HAP emissions are >22.68 Mg/yr
- "Low flow" emission stream [i.e., the flow-weighted average flow rate of the vent as calculated using equation 1 in §63.1362(b)(2)(ii) is less than or equal to the flow rate index calculated using equation 2 in §63.1362(b)(2)(ii)]

Procedures to calculate uncontrolled emissions are specified in §63.1365(c)(2).

For ease of discussion in this document, we refer to vents that meet these conditions as "large" vents, although subpart MMM does not use this or any other term to describe these vents. For these large vents, you have the following **five** control options for the organic HAP emissions:

Option 1: 98% reduction [§63.1362(b)(2)(ii)]

Reduce total organic HAP emissions by at least 98 weight percent

Option 2: reduce outlet concentration [§63.1362(b)(2)(iv)(A)]

Reduce organic HAP emissions to an outlet concentration of ≤20 ppmv as total organic compounds (TOC)

Option 3: use a flare [§63.1362(b)(2)(iv)(B)]

Use a flare that meets the requirements of §63.11(b) (Subpart A General Provisions) to control total organic HAP emissions

Option 4: use alternative standard [§63.1362(b)(6)]

Reduce total organic HAP emissions to an outlet concentration of ≤20 ppmv as TOC in accordance with the alternative standard

Note: The outlet concentration is the same as for Option 2, but the alternative standard requires monitoring with CEMS, whereas Option 2 requires monitoring of control device operating parameters.

Option 5: current % reduction [§63.1362(b)(2)(ii)(B)]

Reduce uncontrolled total organic HAP emissions by at least 90 weight percent if the emissions were already reduced by at least 90 weight percent by a control device installed on or before November 10, 1997

Organic HAP emissions for "all" process vents - Existing Sources

For all process vents within a process that don't fit the definition of a "large" vent, you have **four** compliance options available. For any individual vent or any combination of vents you may

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comply using **Option 2**, **Option 3**, or **Option 4** as described above. For the collective emissions from all vents not controlled by one of these three options, you must use:

Option 6: 90 % reduction [§63.1362(b)(2)(ii)]

Reduce uncontrolled organic HAP emissions by at least 90 weight percent

HCl/Cl_2 emissions - Existing Sources

For uncontrolled HCl/Cl_2 emissions, you have **three** compliance options available. You may control any individual process vent or any combination of process vents using:

Option 7: reduce outlet concentration [§63.1362(b)(3)(ii)]

Reduce uncontrolled HCl/Cl_2 emissions to an outlet concentration of ≤20 ppmv

Option 8: use alternative standard [§63.1362(b)(6)]

Reduce uncontrolled HCl/Cl_2 emissions to an outlet concentration of ≤20 ppmv in accordance with the alternative standard.

Note: The outlet concentration is the same as for Option 7, but the alternative standard requires monitoring with CEMS, whereas Option 7 requires monitoring of control device operating parameters.

You must control collective uncontrolled HCl/Cl_2 emissions from all Group 1 process vents that are not controlled by Option 7 or Option 8 using:

Option 9: 94% reduction [§63.1362(b)(3)(ii)]

Reduce uncontrolled HCl/Cl_2 emissions by at least 94 weight percent

Organic HAP emissions - New Sources

For the organic HAP emissions, you have **four** compliance options available. You may control organic HAP emissions from any individual vent or any combination of vents within a process using **Option 2**, **Option 3**, or **Option 4** as described above. You must use **Option 1** as described above to control the collective emissions from all Group 1 process vents that are not controlled using Option 2, Option 3, or Option 4.

HCl/Cl_2 emissions - New Sources

Your compliance options for your new uncontrolled HCl/Cl_2 sources depends on the amount of your uncontrolled emissions. The two categories are: (1) ≥6.8 Mg/yr but <191 Mg/yr and (2) ≥191 Mg/yr.

If the collective uncontrolled HCl/Cl_2 emissions from all of the process vents within a process are ≥6.8 Mg/yr and <191 Mg/yr, you have **three** compliance options for the collective HCl/Cl_2

emissions from all Group 1 process vents. You may control any individual process vent or any combination of process vents using:

Option 7: reduce outlet concentration [§63.1362(b)(5)(ii)]

Reduce uncontrolled HCl/Cl_2 emissions to outlet concentrations of ≤20 ppmv

Option 8: use alternative standard [§63.1362(b)(6)]

Reduce uncontrolled HCl/Cl_2 emissions to an outlet concentration of ≤20 ppmv in accordance with the alternative standard.

Note: The outlet concentration is the same as for Option 7, but the alternative standard requires monitoring with CEMS, whereas Option 7 requires monitoring of control device operating parameters.

You must control collective uncontrolled HCl/Cl_2 emissions from all Group 1 process vents that are not controlled by Option 7 or Option 8 using:

Option 9: 94% reduction [§63.1362(b)(5)(ii)]

Reduce uncontrolled HCl/Cl_2 emissions by at least 94 weight percent

If, however, your uncontrolled HCl/Cl_2 emissions from the sum of all process vents within a process are ≥191 Mg/yr, you have **three** different compliance options. You may control any individual process vent or any combination of process vents using:

Option 7: reduce outlet concentration [§63.1362(b)(5)(iii)]

Reduce uncontrolled HCl/Cl_2 emissions to outlet concentrations of ≤20 ppmv

Option 8: use alternative standard [§63.1362(b)(6)]

Reduce uncontrolled HCl/Cl_2 emissions to an outlet concentration of ≤20 ppmv in accordance with the alternative standard.

Note: The outlet concentration is the same as for Option 7, but the alternative standard requires monitoring with CEMS, whereas Option 7 requires monitoring of control device operating parameters.

You must control collective uncontrolled HCl/Cl_2 emissions from all Group 1 process vents that are not controlled by Option 7 or Option 8 using:

Option 10: 99% reduction [§63.1362(b)(5)(iii)]

Reduce uncontrolled HCl/Cl_2 emissions by at least 99 weight percent

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How do I show initial compliance with the process vent requirements?

How you show initial compliance depends on which options you choose and which types of activities generate emissions from your processes.

Typically, to demonstrate initial compliance, you will need to calculate the uncontrolled emissions from each activity in you process that generates emissions. The emissions for these activities are also called "emission episodes." You will need the uncontrolled emissions to determine whether the process has Group 1 or Group 2 process vents. You also may need uncontrolled emissions to:

- determine conditions under which the performance test or design evaluation must be performed
- determine whether a control device is "large" or "small"
- use in calculations of the percent reduction for a process

For batch processes, you sum the emissions from all of the emission episodes to calculate the mass emitted per batch. For continuous processes, you sum the emissions from all of the emission episodes to calculate the mass emitted per unit time (you may select any time period; 1 hour would be reasonable).

Equations for calculating emissions from the following activities are included in §63.1365(c)(2)(i)(B) of the rule:

- filling
- purging
- heating
- depressurization
- vacuum systems
- gas evolution
- air drying

Most of the calculations require you to estimate the HAP partial pressure. Section 63.1365(c)(2)(i)(A) describes options for estimating partial pressure.

If your emissions are due to activities **other than** listed above, you must conduct an engineering assessment to determine your emissions [§63.1365(c)(2)(ii)].

Information and procedures that may be used in an engineering assessment are described in §63.1365(c)(2)(ii).

You may also request approval from the Administrator to determine emissions from any of the listed activities based on an engineering assessment.

Compliance with Group 2 emission limits

You demonstrate initial compliance with the Group 2 cutoffs for uncontrolled organic HAP and HCl/Cl_2 mass emission limits by projecting the annual uncontrolled emissions for the process. You do this by calculating the uncontrolled emissions for each emission episode within the process, summing the emissions for all emission episodes in the process, and multiplying by **either** of the following: [§63.1365(c)(1)(i), (ii)]

- the estimated annual number of batches for batch processes
- the estimated operating hours per year for continuous processes

Options 1, 5, 6, 9, or 10: Compliance with percent reduction options

You demonstrate initial compliance with the percent reduction options by doing **all** of the following:

- determine uncontrolled emissions for all emission episodes that are part of the analysis
- determine controlled emissions for these emission episodes
- sum the uncontrolled and controlled emissions and calculate the overall percent reduction [§63.1365(c)(1)(iii), (iv)]

Note: If all emissions are controlled using a single control device, calculating the controlled emissions for each emission episode is not necessary.

You determine uncontrolled emissions as described above. The procedures to determine controlled emissions vary depending on whether you use a **condenser**, a **"large" control device**, or a **"small" control device**.

Definition: *Large control device* means a device that controls process vents, and the combined inlet HAP emissions into the control device from all sources are ≥ 10 tons/yr.

Definition: *Small control device* means a device that controls process vents, and the combined HAP emissions into the control device from all sources are <10 tons/yr.

For **condensers**, you calculate controlled emissions for each emission episode by doing **both** of the following:

- measure the outlet gas temperature from the condenser [§63.1365(c)(3)(iii)]
- calculate controlled emissions using the measured temperature in the appropriate equation in §63.1365(c)(3)(iii)

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For control devices **other than a condenser**, you calculate controlled emissions based on the following steps:

- determine whether you have a large control device or a small control device based on the total annual inlet uncontrolled HAP emissions
- for a large control device, calculate the control efficiency using a performance test [§63.1365(c)(3)(ii)]
- for a small control device, calculate the control efficiency using either a performance test or a design evaluation [§63.1365(c)(3)(i)]
- calculate controlled emissions using the uncontrolled emissions and the calculated control efficiency

If a small control device becomes a large control device, you must then recalculate the control efficiencies using the results of a performance test.

Note: Both design evaluations and performance tests must be conducted under the most challenging conditions for the device. The rule defines the most challenging conditions as either absolute or hypothetical peak-case conditions. The procedures for determining the absolute or hypothetical peak-case conditions are described in §63.1365(b)(ii).

The parameters to consider in design evaluations for different types of control devices are described in §63.1365(a)(1).

Options 2 or 7: Compliance with outlet concentration options

You determine initial compliance with the 20 ppmv outlet concentration limits by testing using an applicable EPA method (e.g., M18 or M25A for TOC or M26 for HCl) under the most challenging conditions for the device [§63.1365(c)(1)(v)].

If you combine supplemental gases with the emission stream, you must correct the measured concentrations as follows:

- To 3 percent oxygen, if you use a combustion control device [§63.1365(a)(7)(i)].
- By the ratio of the total flow to the flow without supplemental gases, if you use a noncombustion control device [§63.1365(a)(7)(ii)]

Definition: *Supplemental gases* means any nonaffected gaseous streams (streams that are not from process vents, storage vessels, equipment or waste management units) that contain less than 20 ppmv TOC and less than 20 ppmv total HCL and chlorine, as determined through process knowledge, and are combined with an affected vent stream. Air required to operate combustion device burner(s) is not considered a supplemental gas.

Option 3: Compliance using a flare

When you use a flare as your control device, demonstrate initial compliance by doing **all** of the following:

- determine visible emissions using Method 22 of 40 CFR part 60, Appendix A, as described in §63.11(b)(4) of the General Provisions
- determine under absolute or hypothetical peak-case conditions, the net heating value of gas being combusted and its exit velocity as specified in §63.11(b)(6) through (8) of the General Provisions [§63.1365(a)(3), (c)(1)(vii)]

Option 4 or 8: Compliance with the alternative standard

You demonstrate initial compliance with the alternative standard by having the monitoring equipment operational on the compliance date (see the discussion of monitoring requirements for the alternative standard).

In addition, if you intend to calibrate the monitor using the predominant HAP, you'll have to use Method 18 to determine the predominant HAP [§63.1365(a)(5), (c)(1)(vi)].

What monitoring must I do for my process vents?

To demonstrate ongoing compliance with the option you selected, you must monitor one or more parameters. Typically, your monitoring requirements consist of all of the following:

- Identifying the parameter(s) to monitor
- Setting site-specific limits for the parameter(s)
- Averaging the measured values for comparison with the limits

Each of these steps is discussed in more detail below.

What parameters must I monitor?

The specific parameters that you must monitor, and the required frequency of monitoring, will depend on the type of control device that you use and if the total inlet HAP emissions going into your control device is <0.91 Mg/yr or ≥0.91 Mg/yr.

If the total inlet HAP emissions to your control device is <0.91 Mg/yr, you're required to conduct a periodic verification that the device is operating properly.

To provide the verification you must demonstrate on a **daily**, or more frequent, basis that the control device is working as designed.

One example of an acceptable periodic verification demonstration is to conduct a daily measurement of the same parameter(s) that must be monitored for larger control devices, as described below [§63.1366(b)(1)(i)].

You describe the verification procedure you intend to use in your Precompliance Plan.

Note: The periodic verification doesn't apply for the alternative standard (Option 4 or 8); you must always continuously monitor the outlet concentration(s) using a CEMS.

If the total inlet HAP emissions to your control device are ≥0.91 Mg/yr, you must monitor **either** the outlet emission concentration or various operating parameters as described in §63.1366(b)(1)(ii) through (x). These monitoring requirements are summarized in Table 3-2.

Note: Each monitoring device must be calibrated annually, and the required accuracy of each device is specified in §63.1366(b)(1) of the rule.

TABLE 3-2. Monitoring Requirements for Air Pollution **Control Devices**

If you're complying with the following compliance options...	And the total inlet HAP emissions to your control device are...	And you're using the following control device...	Then you must monitor this parameter...[a]	At this frequency...	According to these sections of the rule...
Options 1, 2, 5-7, 9, and 10	<0.91 Mg/yr	any control device	parameter(s) specified in your approved precompliance plan that demonstrate the control device is operating as designed	at least once per day	63.1366(b)(1)(i)
Options 1, 2, 5-7, 9, and 10 (e.g., any % reduction or outlet concentration	≥0.91 Mg/yr	Scrubber	liquid flow rate into scrubber or pressure drop across the scrubber	every 15 minutes	63.1366(b)(1)(ii)
option, except the alternative standard[b], Option 4 or 8)			also monitor the pH if the scrubber uses a caustic solution to remove acid gases	once per day	63.1366(b)(1)(ii)
		Condenser	condenser outlet gas temperature	every 15 minutes	63.1366(b)(1)(iii)
		Regenerative carbon adsorber	• regeneration frequency (time since the end of the last regeneration), and	• each regeneration cycle	63.1366(b)(1)(iv)
			• temperature to which the bed is heated during regeneration, and	• each regeneration cycle	
			• temperature to which the bed is cooled, and	• within 15 minutes of completing the cooling phase of each regeneration cycle	
			• regeneration stream flow, and	• each regeneration cycle	

TABLE 3-2. (cont'd)

If you're complying with the following compliance options...	And the total inlet HAP emissions to your control device are...	And you're using the following control device...	Then you must monitor this parameter...[a]	At this frequency...	According to these sections of the rule...
			• check for bed poisoning following manufacturer's specifications	• once per year	
		Nonregenerative carbon adsorber	• operating time since last replacement, or	• n/a	
			• monitor TOC concentration in exhaust vent stream for breakthrough	• daily, or at an interval no greater than 20 percent of the time needed to consume the total working capacity of the carbon under peak-case conditions	63.1366(b)(1)(v)(A)
		Thermal incinerator	temperature of gases exiting the combustion chamber	every 15 minutes	63.1366(b)(1)(vii)
		Catalytic incinerator	temperature difference across the catalyst bed	every 15 minutes	63.1366(b)(1)(viii)
		Process heater and boiler (except those covered by Option 4)	temperature of gases exiting the combustion chamber	every 15 minutes	63.1366(b)(1)(ix)(A)
		any other device	identify applicable parameters and request approval to use	part of the request for approval	63.1366(b)(4)
Option 3 (e.g., using a flare)	≥0.91 Mg/yr	Flare	presence of pilot flame	every 15 minutes	63.1366(b)(1)(vi)

TABLE 3-2. (cont'd)

If you're complying with the following compliance options...	And the total inlet HAP emissions to your control device are...	And you're using the following control device...	Then you must monitor this parameter...[a]	At this frequency...	According to these sections of the rule...
Option 4 or 8 (e.g., alternative standard)	All	Any control device	outlet TOC concentration and/or outlet HCl/CL_2 concentration using CEM meeting PS 8 or 9 of Appendix B of Part 60	every 15 minutes	63.1366(b)(5)

[a] Note that for all control devices, a closed vent system that contains a bypass line that could divert a vent stream away from the control device must be monitored for flow in the bypass line every 15 minutes, or the bypass line valve must be secured in the closed position with a car seal or lock and key type configuration, and the seal or closure mechanism must be visually inspected once per month [§63.1366(b)(1)(xiii) and 63.1362(j)].

[b] As an alternative to the specified operating parameters for control devices used to comply with any of the percent reduction or outlet concentration options you may use a continuous emission monitor (CEM) meeting the requirements of Performance Specifications (PS) 8 or 9 of Appendix B of Part 60 to monitor TOC and/or HCl/Cl_2 every 15 minutes [§63.1366(b)(1)(x)].

How do I set monitoring parameter limits?

You establish the limit against which your monitored values for a control device operating parameter is compared during the initial compliance demonstration [§63.1366(b)(3)(i) and (ii)]. This limit will be associated with the most challenging conditions for the control device, and meeting it will demonstrate ongoing compliance at all times.

The monitoring parameter limits and your rationale for these limits are subject to review and approval by the Administrator.

If you demonstrate initial compliance by conducting a performance test, you establish minimum or maximum monitoring limits based on the average of the average values from each of the three test runs [§63.1366(b)(3)(ii)(A)].

In addition to setting monitoring limits for the most challenging conditions, you also may set additional monitoring limits for less challenging conditions.

For example, if you use a scrubber to control several process vents within a batch process, you must set at least one scrubber liquid flow rate limit, and this limit must be associated with the most challenging operating conditions under which the initial compliance determination is conducted. Maintaining the monitored scrubber flow above this limit at all times demonstrates that the required percent reduction is being met at all times. However, if the HAP emitted from one vent is more soluble than the HAP emitted from other vents (i.e., it is a period that doesn't constitute the most challenging conditions for the control device), you may decide to set a lower flow rate limit for the time that vent is being controlled. But you must demonstrate that the required level would still achieve the required control level.

You must record in a daily schedule or log the points at which the parameter limit changes, and at least one reading must be taken after each change, even if the duration associated with that limit is less than 15 minutes.

To establish monitoring levels for the less challenging conditions, you may supplement the performance test results with an engineering assessment and/or manufacturers recommendations. Your rationale for the specific level(s) must be provided in your Precompliance Plan.

The Precompliance Plan must be submitted for approval at least 6 months before the Compliance date. See Chapter 8.

Note: Limits are not applicable for flares (option 3) because the monitored parameter, the presence or absence of a pilot flame, can not vary over a range.

Monitoring limits for the alternative standard are defined in the standard itself, and you may not set multiple limits when complying with the alternative standard.

How may I average my monitoring parameter values?

Typically, monitored parameter values must be averaged over **either** a day or a block. A **daily average** is any continuous 24-hour period of your choice - it doesn't have to be from midnight to midnight.

A **block average** is only for vents from batch operations, and it's limited to the period of time that is, at a maximum, equal to the time from the beginning to the end of a series of consecutive batch operations [§63.1366(b)(2)(i) and (ii)].

Monitoring values taken during periods of no flow or when streams that aren't subject to the rule shouldn't be considered in either the daily or block averages. To identify periods of no flow you must use a flow indicator at the inlet (or outlet) of the control device [§63.1366(b)(2)(iii)].

Note: Averaging is not applicable for carbon adsorbers (except under option 4, the alternative standard) and for flares (option 3).

What records must I keep for my process vents?

To avoid repetition, all of your recordkeeping requirements are presented in **Chapter 8**.

What reports must I submit for my process vents?

To avoid repetition, all of your reporting requirements are presented in **Chapter 8**. Requirements specific to storage vessels are also shown in this section.

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Checklists for Process Vent Inspections

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

The table below explains which inspection checklists you should use for determining compliance with the process vent requirements.

If you follow...	And the total inlet HAP emissions to the control device are ...	And the process vent emission streams are conveyed by a closed-vent system to ...	Then use the following checklists[a]:	Starting on page ...
any option, except 3, 4, and 8	≥ 0.91 Mg/yr	a scrubber	3	6
		a condenser	4	8
		a regenerative carbon adsorber	5	9
		a nonregenerative carbon adsorber	6	11
		a thermal incinerator	7	12
		a catalytic incinerator	8	13
		a boiler or process heater with a design heat input of < 44 megawatts and for which the emission stream is not introduced with the primary fuel	9	15
3	≥ 0.91 Mg/yr	a flare	10	16
4	all	any control device	11	17
any option, except 4 and 8	< 0.91 Mg/yr	any control device	12	19

[a] Checklists 1 and 2 apply for all options.

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Checklist 1: Applicability (All Options)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: If you answer "yes" to either question 1 or question 2, don't continue; your process vent isn't covered. If you answer "yes" to using any of the control devices in question 3, don't continue; you are exempt from the monitoring and associated recordkeeping and reporting requirements. *§63.1362(b)(2)(i), (3)(i), (4)(i), (5)(i), and (l), §63.1365(a)(4), §63.1366(b)(1)(ix)(B)*

			Comments
1.	Are the total uncontrolled organic HAP emissions from all process vents in the process ≤ 0.15 Mg/yr, and are the total uncontrolled HCl/Cl_2 emissions from all process vents in the process ≤ 6.8 Mg/yr?	☐ Yes	☐ No
2.	Is the HAP content of your emission stream < 20 ppmv?	☐ Yes	☐ No
3.	Does your process vent discharge to any of the following control devices:		
	• a boiler or process heater burning hazardous waste for which you've:		
	▸ been issued a final permit under 40 CFR part 270 and are complying with requirements of 40 CFR part 266, subpart H; or	☐ Yes	☐ No
	▸ certified compliance with the interim status requirements of 40 CFR part 266, subpart H?	☐ Yes	☐ No
	• a hazardous waste incinerator for which you've:		
	▸ have been issued a final permit under 40 CFR part 270 and are complying with the requirements of 40 CFR part 264, subpart O; or	☐ Yes	☐ No
	▸ have certified compliance with the interim status requirements of 40 CFR part 265, subpart O?	☐ Yes	☐ No
	• a boiler or process heater with a design heat input ≥44 megawatts?	☐ Yes	☐ No
	• a boiler or process heater for which the emission stream is introduced with the primary fuel?	☐ Yes	☐ No

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Checklist 2: Requirements for closed-vent systems (All Options)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements			**Comments**
1. If your closed-vent system has bypass lines that could divert a vent stream away from the control device and to the atmosphere, have you done one of the following:			
• used a flow indicator that takes a reading at least once every 15 minutes at the entrance of the bypass line? *§63.1362(j)(1)*	☐ Yes	☐ No	
• secured the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration? *§63.1362(j)(2)*	☐ Yes	☐ No	
Note: Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, rupture disks, and pressure relief valves needed for safety purposes are not subject to the monitoring requirements for bypass lines. §63.1362(j)			
2. If you secure the bypass line valve in the closed position as specified in question 6, do you visually inspect the seal or closure mechanism monthly to ensure the valve is maintained in the closed position? *§63.1362(j)(2)*	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			**Comments**
1. If you use a flow indicator to monitor your closed-vent system bypass line, do you have **all** of the following records: *§63.1367(f)(1)*			
• hourly flow indicator readings?	☐ Yes	☐ No	
• times and durations of periods when the flow indicator is not operating?	☐ Yes	☐ No	
• times and durations of periods when the vent stream is diverted from the control device?	☐ Yes	☐ No	

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Checklist 2: *(cont'd)*
Requirements for closed-vent systems (All Options)

B. Recordkeeping and Reporting Requirements			Comments
2. If you use a seal mechanism to prevent diversion of emission streams through a bypass line, do you have **all** of the following records: *§63.1367(f)(2)*			
• records that the monthly visual inspections of the seal or closure mechanism have been done?	☐ Yes	☐ No	
• records of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out?	☐ Yes	☐ No	
• records of any car-seal that has broken?	☐ Yes	☐ No	
3. Are records retained for at least 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
4. Did you submit **all** of the following in your Periodic Report: *§63.1368(g)(2)(iii)*			
• records of all periods when the vent stream is diverted from the control device?	☐ Yes	☐ No	
• records of all periods when the seal mechanism is broken, the bypass valve position has changed, or the key to unlock the bypass line valve was checked out?	☐ Yes	☐ No	

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Checklist 3: Requirements for scrubbers (All options except 3, 4, and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements *§63.1366(b)(1)(ii) and (2)*			**Comments**
1. Do you monitor scrubber liquid flow rate or pressure drop at least once every 15 minutes during the period in which the scrubber is controlling HAP from an emission stream?	☐ Yes	☐ No	
2. Is the monitoring device used to determine the pressure drop certified by the manufacturer to be accurate to within a gage pressure of ± 10 percent of the maximum pressure drop measured?	☐ Yes	☐ No	
3. Is the monitoring device used for measurement of scrubber liquid flow rate certified by the manufacturer to be accurate to within ± 10 percent of the design scrubber liquid flow rate?	☐ Yes	☐ No	
4. Is the monitoring device calibrated annually?	☐ Yes	☐ No	
5. Do you monitor the pH of the effluent scrubber liquid at least once a day if the scrubber uses a caustic solution to remove acid emissions?	☐ Yes	☐ No	
6. Do you average the continuous readings over the operating day or operating block?	☐ Yes	☐ No	
7. If flow to the scrubber can be intermittent, did you install a flow indicator at the inlet or outlet of the scrubber and do you use it to identify periods of no flow?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Did you submit **all** of the following in your Notification of Compliance Status Report:			
• results of the initial performance test or design evaluation? *§63.1368(f)*(2)	☐ Yes	☐ No	
• documentation to establish a minimum scrubber liquid flow rate or pressure drop as a site-specific operating parameter? *§63.1368(f)(3)*	☐ Yes	☐ No	
2. Do you keep daily (or more frequent) records of the pH of the scrubber effluent if necessary? *§63.1367(b)(1)*	☐ Yes	☐ No	
3. Do you keep continuous records of the scrubber inlet flow rate or pressure drop? *§63.1367(b)(1)*	☐ Yes	☐ No	

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Checklist 3: *(cont'd)*
Requirements for scrubbers (All options except 3, 4, and 8)

B. Recordkeeping and Reporting Requirements			Comments
4. Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
• all monitoring data for all operating days or blocks when the average scrubber inlet flow rate or pressure drop is lower than the minimum established in your NOCSR or operating permit?	☐ Yes	☐ No	
• all monitoring data for all operating days or blocks when the average pH value of the scrubber effluent is lower than the minimum established in your NOCSR or operating permit?	☐ Yes	☐ No	
• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
5. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 4: Requirements for condensers (All options except 3, 4, and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A	**Monitoring Requirements** *§63.1366(b)(1)(iii) and (2)*			**Comments**
1.	Do you measure the condenser outlet gas temperature at least once every 15 minutes during the period in which the condenser is controlling HAP from an emission stream?	☐ Yes	☐ No	
2.	Is the temperature monitoring device accurate to within ± 2 percent of the temperature measured in degrees Celsius or ± 2.5°C, whichever is greater?	☐ Yes	☐ No	
3.	Is the temperature monitoring device calibrated annually?	☐ Yes	☐ No	
4.	Do you average the temperature readings over the operating day or operating block?	☐ Yes	☐ No	
5.	If flow to the condenser can be intermittent, did you install a flow indicator at the inlet or outlet of the condenser and do you use it to identify periods of no flow?	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Did you submit **all** of the following in your Notification of Compliance Status Report:			
	• results of the calculations to demonstrate initial compliance? *§63.1368(f)(2)*	☐ Yes	☐ No	
	• documentation to establish the maximum condenser outlet gas temperature as a site-specific operating parameter? *§63.1368(f)(3)*	☐ Yes	☐ No	
2.	Do you keep continuous records of the condenser outlet temperature? *§63.1367(b)(1)*	☐ Yes	☐ No	
3.	Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)(ii)*			
	• all monitoring data for all operating days or blocks when the condenser average outlet temperatures that are higher than the maximum established in your NOCSR or operating permit?	☐ Yes	☐ No	
	• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
4.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 4: *(cont'd)*
Requirements for condensers (All options except 3, 4, and 8)

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Checklist 5: Requirements for regenerative carbon adsorbers (All options except 3, 4, and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements *§63.1366(b)(1)(iv) and (2)*			**Comments**
1. For each regenerative cycle, do you monitor **all** of the following:			
• operating time since last regeneration?	☐ Yes	☐ No	
• temperature to which the bed is heated during regeneration?	☐ Yes	☐ No	
• temperature to which the bed is cooled, measured within 15 minutes of completing the cooling phase?	☐ Yes	☐ No	
• regeneration stream flow?	☐ Yes	☐ No	
2. Is the temperature monitoring device accurate to within ± 2 percent of the temperature measured in degrees Celsius or ± 2.5°C, whichever is greater?	☐ Yes	☐ No	
3. Is the regeneration stream flow monitoring device capable of recording the total regeneration stream flow to within ± 10 percent of the established value (i.e., accurate to within ± 10 percent of the reading)?	☐ Yes	☐ No	
4. Are the temperature and flow monitoring devices calibrated annually?	☐ Yes	☐ No	
5. Do you conduct an annual check for bed poisoning in accordance with manufacturer's specifications?	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			**Comments**
1. Did you submit **all** of the following in your Notification of Compliance Status Report:			
• results of the initial performance test or design evaluation? *§63.1368(f)(2)*	☐ Yes	☐ No	
• documentation to establish the regeneration stream flow, the minimum carbon bed regeneration temperature, and the maximum cooling phase temperature as site-specific operating parameters? *§63.1368(f)(3)*	☐ Yes	☐ No	
2. Do you keep records of the total regeneration stream mass or volumetric flow for each carbon bed regeneration cycle? *§63.1367(b)(1)*	☐ Yes	☐ No	

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Checklist 5: *(cont'd)*
Requirements for regenerative carbon adsorbers (All options except 3, 4, and 8)

B. Recordkeeping and Reporting Requirements			Comments
3. Do you keep records of the temperature to which the carbon bed is heated during each carbon bed regeneration? *§63.1367(b)(1)*	☐ Yes	☐ No	
4. Do you keep records of the temperature to which the carbon bed is cooled after each carbon bed regeneration? *§63.1367(b)(1)*	☐ Yes	☐ No	
5. Do you keep records of the operating time between regeneration? *§63.1367(b)(1)*	☐ Yes	☐ No	
6. Do you identify **all** of the following in your Periodic Reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
• all regeneration cycles when the total regeneration stream mass or volumetric flow is lower than the minimum flow established during your initial compliance demonstration?	☐ Yes	☐ No	
• all regeneration cycles during which the temperature to which the carbon bed is heated during regeneration is lower than the minimum temperature established during your initial compliance demonstration?	☐ Yes	☐ No	
• all regeneration cycles during which the temperature to which the carbon bed is cooled after regeneration is higher than the maximum temperature established during your initial compliance demonstration?	☐ Yes	☐ No	
• all instances when the operating time between regeneration exceeds the time interval established during your initial compliance demonstration?	☐ Yes	☐ No	
7. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 6: Requirements for nonregenerative carbon adsorbers (All options except 3, 4, and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements *§63.1366(b)(1)(v) and (2)*			**Comments**
1. Do you replace the carbon bed in the nonregenerative carbon adsorption system with fresh carbon on a regular schedule based on either of the following:			
• monitor the outlet TOC concentration that indicates breakthrough?	☐ Yes	☐ No	
• time interval established in your NOCS?	☐ Yes	☐ No	
2. If you monitor the TOC concentration, do you take readings daily or at an interval no greater than 20 percent of the time required to consume the total carbon working capacity under peak-case conditions?	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			**Comments**
1. Did you submit the results of the initial design evaluation in your Notification of Compliance Status Report? *63.1368(f)(2)*	☐ Yes	☐ No	
2. Do you identify in your Periodic Reports all instances when the carbon bed is not replaced within the required time interval based on either the outlet TOC concentration or the time period established in your NOCSR or operating permit? *§63.1368(g)(2)*	☐ Yes	☐ No	
3. If you monitor the outlet TOC concentration, do you maintain records of readings? *§63.1367(b)(1)*	☐ Yes	☐ No	
4. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 7: Requirements for thermal incinerators (All options except options 3, 4, and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. **Monitoring Requirements** *§63.1366(b)(1)(vii) and (2)*			**Comments**
1. Do you measure the outlet gas temperature at least once every 15 minutes during the period in which the thermal incinerator is controlling HAP from an emission stream?	☐ Yes	☐ No	
2. Is the temperature monitoring device accurate to within ± 0.75 percent of the temperature measured in degrees Celsius or ± 2.5°C, whichever is greater?	☐ Yes	☐ No	
3. Is the temperature monitoring device calibrated annually?	☐ Yes	☐ No	
4. Do you average the temperature readings over the operating day or operating block?	☐ Yes	☐ No	
5. If flow to the thermal incinerator can be intermittent, did you install a flow indicator at the inlet or outlet of the thermal incinerator and do you use it to identify periods of no flow?	☐ Yes	☐ No	

B. **Recordkeeping and Reporting Requirements**			**Comments**
1. Did you submit **all** of the following in your Notification of Compliance Status Report:			
• results of the initial performance test or design evaluation? *§63.1368(f)(2)*	☐ Yes	☐ No	
• documentation to establish the minimum outlet gas temperature as a site-specific operating parameter? *§63.1368(f)(3)*	☐ Yes	☐ No	
2. Do you keep continuous records of the outlet temperature? *§63.1367(b)(1)*	☐ Yes	☐ No	
3. Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
• all monitoring data for all operating days or blocks when the average outlet temperature is lower than the minimum temperature specified in your NOCSR or operating permit?	☐ Yes	☐ No	
• identification of all operating days or blocks when insufficient monitoring data are collected?	☐ Yes	☐ No	

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Checklist 7: *(cont'd)*
Requirements for thermal incinerators (All options except options 3, 4, and 8)

B. Recordkeeping and Reporting Requirements			Comments
4. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 8: Requirements for catalytic incinerators (All options except 3, 4, and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements *§63.1366(b)(1)(viii) and (2)*			**Comments**
1. Do you measure the temperature of the gas stream immediately before and after the catalyst bed at least once every 15 minutes during the period in which the catalytic incinerator is controlling HAP form an emission stream?	☐ Yes	☐ No	
2. Do you calculate the temperature difference across the catalyst bed at least once every 15 minutes during the period in which the catalytic incinerator is controlling HAP form an emission stream?	☐ Yes	☐ No	
3. Is the temperature monitoring device accurate to within ± 0.75 percent of the temperature measured in degrees Celsius or ± 2.5°C, whichever is greater?	☐ Yes	☐ No	
4. Is the temperature monitoring device calibrated annually?	☐ Yes	☐ No	
5. Do you average the temperature readings over the operating day or operating block?	☐ Yes	☐ No	
6. If flow to the catalytic incinerator can be intermittent, did you install a flow indicator at the inlet or outlet of the catalytic incinerator and do you use it to identify periods of no flow?	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			**Comments**
1. Did you submit all of the following in your Notification of Compliance Status Report:			
• results of the initial performance test or design evaluation? *§63.1368(f)(2)*	☐ Yes	☐ No	
• documentation to establish the minimum temperature of the gas stream immediately before the catalyst bed and the minimum temperature difference across the catalyst bed as site-specific operating parameters? *§63.1368(f)(3)*	☐ Yes	☐ No	
2. Do you keep continuous records of the temperature of the gas stream upstream of the catalyst bed and the temperature difference across the catalyst bed? *§63.1367(b)(1)*	☐ Yes	☐ No	

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Checklist 8: *(cont'd)*
Requirements for catalytic incinerators (All options except 3, 4, and 8)

B. Recordkeeping and Reporting Requirements			Comments
3. Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
• all monitoring data for all operating days or blocks when the average upstream temperature is lower than the minimum temperature specified in your NOCSR or operating permit, or the average temperature difference across the catalyst bed is lower than the minimum temperature difference specified in your NOCSR or operating permit?	☐ Yes	☐ No	
• identification of all operating days or blocks when insufficient monitoring data are collected?	☐ Yes	☐ No	
4. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 9: Requirements for a boiler or process heater (All options, except 3, 4, and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements *§63.1366(b)(1)(ix) and (2)*			**Comments**
1. Do you monitor the temperature of the gases exiting the combustion chamber at least every 15 minutes during the period in which the boiler or process heater is controlling HAP from an emission stream?	☐ Yes	☐ No	
2. Is the temperature monitoring device accurate to within ± 0.75 percent of the temperature measured in degrees Celsius or ± 2.5°C, whichever is greater?	☐ Yes	☐ No	
3. Is the temperature monitoring device calibrated annually?	☐ Yes	☐ No	
4. Do you average the temperature readings over the operating day or operating block?	☐ Yes	☐ No	
5. If flow to the boiler or process heater can be intermittent, did you install a flow indicator at the inlet or outlet of the boiler or process heater and do you use it to identify periods of no flow?	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			**Comments**
1. Did you submit **all** of the following in your Notification of Compliance Status Report:			
• results of the initial performance test or design evaluation? *§63.1368(f)(2)*	☐ Yes	☐ No	
• documentation to establish the minimum combustion zone temperature? *§63.1368(f)(3)*	☐ Yes	☐ No	
2. Do you have continuous records of the combustion zone temperature? *§63.1367(b)(1)*	☐ Yes	☐ No	
3. Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
• all monitoring data for all operating days or blocks when the average combustion zone temperature is lower than the minimum temperature specified in your NOCSR or operating permit?	☐ Yes	☐ No	
• identification of all operating days or blocks when insufficient monitoring data are collected?	☐ Yes	☐ No	
4. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 10: Requirements for flares (Option 3)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

1. Monitoring Requirements *§63.1366(b)(1)(vi) and (2)*			**Comments**
1. Do you monitor for the presence of the flare pilot flame at least once every 15 minutes?	☐ Yes	☐ No	
2. Is the monitoring device calibrated annually?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Did you submit **all** of the following in your Notification of Compliance Status Report:			
• results of the initial visible emissions test? *§63.1368(f)(2)*	☐ Yes	☐ No	
• the net heating value of gas being combusted and its exit velocity? *§63.1368(f)(3)*	☐ Yes	☐ No	
2. Do you maintain records of the continuously monitored data? *§63.1367(b)(1)*	☐ Yes	☐ No	
3. Do you identify **all** of the following in your Periodic Reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
• all periods when the flare pilot flame was absent?	☐ Yes	☐ No	
• all periods when the monitor was not working?	☐ Yes	☐ No	
4. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 11: Requirements for alternative standard (Option 4 and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements *§63.1366(b)(2) and (5)*			**Comments**
1. Have you installed a CEMS to monitor the outlet TOC concentration and/or outlet HCl and chlorine concentration at least once every 15 minutes during the period in which the control device is controlling HAP from an emission stream?	☐ Yes	☐ No	
2. Is the TOC monitor installed, calibrated, and maintained to meet the requirements of Performance Specifications 8 or 9 of appendix B of part 60?	☐ Yes	☐ No	
3. Is the monitoring device calibrated at a minimum with quarterly cylinder gas audits?	☐ Yes	☐ No	
4. If supplemental gases are introduced before the control device, is the monitored concentration corrected?	☐ Yes	☐ No	
5. Is the CEMS data reduced to operating day or operating block averages?	☐ Yes	☐ No	
6. If flow to the control device can be intermittent, did you install a flow indicator at the inlet or outlet of the control device, and do you use it to identify periods of no flow?	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			**Comments**
1. Do your records show that you calibrate your monitor in accordance with your quality control program? *§§63.1366(b)(3) and 63.8(d)*	☐ Yes	☐ No	
2. Have your recorded all maintenance and calibration checks performed on the CEMS? *§63.1367(b)(3)*	☐ Yes	☐ No	

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Checklist 11: *(cont'd)*
Requirements for alternative standard (Option 4 and 8)

B.	**Recordkeeping and Reporting Requirements**			**Comments**
3.	Do you have **all** of the following records: *§63.1367(a)(4)*			
	• all required CEMS measurements (including monitoring data recorded during unavoidable CEMS breakdowns and out-of-control periods)?	☐ Yes	☐ No	
	• the date and time of each period when the CEMS is inoperative except for zero (low-level) and high-level checks?	☐ Yes	☐ No	
	• the date and time of each period when the CEMS is out of control (e.g., calibration drift exceeds specification, CEMS fails cylinder gas audit)?	☐ Yes	☐ No	
	• the date and start and end time of each period of excess emissions and parameter monitoring exceedances occurring during startups, shutdowns, malfunctions, and at other times?	☐ Yes	☐ No	
	• the nature and cause of any malfunction of your monitor (if known), and corrective actions taken?	☐ Yes	☐ No	
	• the total process operating time during the reporting period?	☐ Yes	☐ No	
	• all procedures, including calibrations, that are part of your quality control program?	☐ Yes	☐ No	
4.	Do you have records indicating that you notified the Administrator at least 60 days before conducting a performance evaluation of your CEMS? *§63.1368(d)*	☐ Yes	☐ No	
5.	Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data for all operating days or operating blocks when the average TOC or HCl/Cl_2 concentrations exceed 20 ppmv?	☐ Yes	☐ No	
	• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
6.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 12: Requirements for any control devices that control vent streams containing total HAP emissions less than 0.91 Mg/yr (All options except 4 and 8)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance. If your approved monitoring procedures are the same as those specified in the rule for a larger control device, also fill out the appropriate checklist from among checklists 3 through 10.

A. Monitoring Requirements *§63.1366(b)(1)(i) and (2)*			**Comments**
1. Do you periodically verify that the control device is operating properly by following the procedures specified in your approved Precompliance Plan?	☐ Yes	☐ No	
2. If the verification procedure includes monitoring a parameter more than one time per day, do you average the daily readings?	☐ Yes	☐ No	
3. Do you calibrate any monitoring instruments according to procedures in your approved Precompliance Plan?	☐ Yes	☐ No	
4. If flow to the control device can be intermittent, did you install a flow indicator at the inlet or outlet of the control device and do you use it to identify periods of no flow?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Did you submit a description of your daily or per batch verification procedures in your Precompliance Plan? *§63.1368(e)*	☐ Yes	☐ No	
2. Do you submit **all** of the following in your Periodic Reports if the exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
• all monitoring data for all operating days or blocks when the data show the control device is **not** operating as designed?	☐ Yes	☐ No	
• identification of all operating days or blocks when insufficient monitoring data are collected?	☐ Yes	☐ No	
3. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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What storage vessels are covered?

Storage vessels that meet **all** of the following criteria are covered under Subpart MMM:

- meet the definition of a "Group 1" storage vessel [§63.1361]
- are determined to be part of a PAI process unit [§63.1360(f)]
- aren't exempt under the definition of storage vessel [§63.1361]

What storage vessels are exempt?

Any storage vessels meeting **either** of the following conditions aren't subject to Subpart MMM:

- Group 2 storage vessels
- Vessels that aren't part of a PAI process unit

Note: A Group 2 storage vessel is any vessel that doesn't meet the definition of a Group 1 storage vessel.

In addition, your tank or other vessel isn't considered to be a storage vessel (Group 1 or 2) if **any** of the following apply [§63.1361]:

- it's permanently attached to a motor vehicle, such as a truck, railcar, barge, or ship
- it's designed to operate with a pressure in excess of 204.9 kilopascals and without emissions to the atmosphere
- material stored in the vessel contains no organic HAP or contains organic HAP only as impurities

> **Definition**: *Impurity* means a substance that is produced coincidentally with the product(s), or is present in a raw material. An impurity does not serve a useful purpose in the production or use of the product(s) and is not isolated.

- it's a wastewater storage tank
- it's a non-wastewater waste tank
- it's a process tank

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What is a "Group 1" storage vessel?

If your storage vessel meets any of the following criteria, it's considered a "Group 1" storage vessel: [§63.1361]

Your storage vessel is at ...	And has a capacity of...	And stores material with a **maximum true vapor pressure** of...
an existing source	≥75 m^3	≥ 3.45 kPa
a new source	≥ 40 m^3	≥ 16.5 kPa
	≥ 75 m^3	≥ 3.45 kPa

*Note: If you don't wish to determine the **maximum true vapor pressure** of the material in a storage vessel, then you must designate it as a Group 1 storage vessel [§63.1362(c)(1)].*

How do I know if a storage vessel is part of a PAI process unit?

Your storage vessel **isn't** part of a PAI process unit (and is not part of the affected source) if it's subject to another MACT standard on June 23, 1999 [§63.1360(f)(1)].

Your storage vessel is part of a PAI process unit if **either** of the following apply:

- the input to the vessel from the PAI process unit is greater than or equal to the input from any other PAI or non-PAI process unit
- the output from the vessel to the PAI process unit is greater than or equal to the output to any other PAI or non-PAI process unit

Note: If the greatest input to (or output from) a shared storage vessel is the same for two or more process units, including at least one PAI process unit, you may assign the storage vessel to any one of the PAI process units. [§63.1360(f)(2)]

If the process unit(s) the storage vessel is used with varies from year to year, then you determine the greatest input or output on **either** of the following:

- what you actually used the vessel for during the year preceding June 23, 1999 (i.e., for existing sources)
- what you expect to use the vessel for in the 5 years after startup (i.e., for new storage vessels or existing vessels that were not in operation for the year preceding June 23, 1999).

For storage vessels in tank farms, you use the same procedures described above to determine if the storage vessel is part of a PAI process unit, except your analysis is limited to the process units

for which there is no storage vessel in-between the storage vessel in the tank farm and the associated processes.

You must **reevaluate** if your storage vessel is part of a PAI process unit after **any** of the following occur:

- the storage vessel begins receiving material from (or sending material to) another process unit
- the storage vessel ceases to receive material from (or send material to) a PAI process unit
- there is a significant change in the use of the storage vessel

What compliance options do I have for my storage vessels?

For any storage vessel covered under Subpart MMM, you have **four** compliance options:

Note: Compliance options for storage vessels are the same for new and existing sources.

Option 1: Use a fixed roof tank with an internal floating roof (IFR) [§63.1362(c)(2)(i)]

Equip the storage vessel with a fixed roof and internal floating roof

Option 2: Install an external floating roof (EFR) [§63.1362(c)(2)(ii)]

Equip the storage vessel with an external floating roof

Option 3: Convert your external floating roof to an internal floating roof

[§63.1362(c)(2)(iii)]

Equip the storage vessel with an external floating roof converted to an internal floating roof (i.e., install a fixed roof above an external floating roof)

Option 4: Use a control device that meets any of the following conditions:
[§63.1362(c)(2)(iv)]:

(A) Percent reduction [§63.1362(c)(2)(iv)(A)]
Equip the storage vessel with a closed vent system and a control device that reduces organic HAP emissions by ≥95 percent (by weight)

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(B) Reduce outlet concentration to ≤20 ppmv TOC [§63.1362(c)(2)(iv)(B)]
Equip the storage vessel with a closed vent system and a control device that reduces organic HAP emissions to outlet concentrations of ≤20 ppmv as TOC

(C) A flare [§63.1362(c)(2)(iv)(C)]
Equip the storage vessel with a flare that meets the requirements of §63.11(b) (see the Subpart A General Provisions)

(D) Use **one** of the following as a control device:

- A boiler or process heater with a design heat input of 44 megawatts or greater
- A boiler or process heater into which the emission stream is introduced with the primary fuel
- An incinerator, boiler, or process heater that is permitted under RCRA

These control devices are exempt from initial compliance demonstrations and monitoring requirements. [§63.1362(l) and §63.1365(a)(4)(i)(ii)]

(E) Use the alternative standard [§63.1362(c)(4)]

Use the alternative standard under §63.1362(c)(4), and route emissions from storage vessels to a control device or series of control devices that achieve **all** of the following outlet concentrations:

- ≤20 ppmv TOC (as calibrated on methane or the predominant HAP)
- ≤20 ppmv total HCl and Cl_2

Note: The outlet concentration limits are the same for options 4B and 4E, but the alternative standard requires monitoring with CEMS, whereas Option 4B requires monitoring of control device operating parameters.

For option 4, you're exempt from specification requirements during periods of planned routine maintenance of the control device that don't exceed 240 hr/yr [§63.1362(c)(5)].

How do I show initial compliance with the storage vessel requirements?

Subpart MMM contains different initial compliance requirements based on the compliance options you choose.

Options 1, 2 or 3: Compliance using internal or external floating roofs

You demonstrate initial compliance when you use a **floating roof** by determining if you're in compliance with **all** of the following:

- floating roof design features
- operating requirements
- inspection and measurement requirements

Initial compliance and monitoring requirements for storage vessels equipped with a floating roof are specified in §63.119 and §63.120 of Subpart G of the HON as referenced from §63.1365(d) and §63.1366. However, Subpart MMM designates different definitions and compliance dates as follows:

- the definition in §63.1361 applies when the term "storage vessel" is used in §§63.119 and 63.120.
- November 10, 1997 applies instead of December 31, 1992.
- June 23, 1999 applies instead of April 22, 1994.
- The compliance date specified in §63.1364 of Subpart MMM applies instead of the compliance date in §63.100 of Subpart F

See **Table 4-1** (page x) for your floating roof design and operating requirements You may be subject to one or more of the requirements listed depending on the compliance options you choose. Initial inspections and measurements are discussed in the section "What monitoring must I do?" later in this chapter.

TABLE 4-1. Design and Operating Requirements for Storage Vessels Equipped with a **Floating Roof**

If you're complying with ...	And your roof has the following features...	Then you must meet these design requirements...	And also meet these operating requirements...
Option 1, 2, or 3 (Please note that you have more requirements for these options further in this table)	the floating roof itself		be floating on the liquid surface except when being supported by the leg supports is allowed
		be supported by leg supports **only** under the following conditions: • during initial fill • after the vessel has been completely emptied and degassed • before refilling	the process of filling, emptying, or refilling must be continuous and be as soon as possible
	automatic bleeder vents	have gaskets	be closed at all times except when the roof is being floated off or landed on the leg supports
	openings not in contact with IFRs or EFRs (except for automatic bleeder vents and rim space vents)	project below the liquid surface	
	rim space vents	have gaskets	set to open only in the following conditions: • when the roof is being floated off the roof leg supports • when the pressure beneath the rim seal exceeds manufacturer's specifications
	access hatches and gauge floats	have a gasketed cover	be closed at all times except for access
Option 1	openings in the IFR (except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains)	have a cover or lid with a gasket	be closed at all times except for access
	sample wells	have a slit fabric cover over at least 90 percent of the opening	

TABLE 4-1. (cont'd)

If you're complying with ...	And your roof has the following features...	Then you must meet these design requirements...	And also meet these operating requirements...
	ladder wells	have a gasketed sliding cover	
	penetrations in the IFR for fixed roof columns	have **either** of the following: • a flexible fabric sleeve seal • a gasketed sliding cover	
Option 2	closure device between the vessel wall and roof edge	have **all** of the following: • there must be two seals • the primary seal must be a metallic shoe or liquid-mounted seal • both seals must completely cover the space between the EFR and the vessel wall	
Option 1 or 3	closure device between the vessel wall and the roof edge	**any** one of the following: • a liquid-mounted seal • a metallic shoe seal • a double seal	

TABLE 4-1. (cont'd)

If you're complying with ...	And your roof has the following features...	Then you must meet these design requirements...	And also meet these operating requirements...
Option 2 or 3	openings in the roof except for the following: • automatic bleeder vents • rim space vents • roof drains • leg sleeves	be equipped with a gasketed cover or lid	both of the following: • keep the cover or lid closed except for access • cover on each access hatch and each gauge float well must be bolted or fastened to be air tight when closed
	roof drains that empty into the stored liquid	have a slotted membrane fabric cover over at least 90 percent of the drain opening area	
	guide pole wells	have **either** of the following: • a gasketed sliding cover • a flexible fabric sleeve seal	
	unslotted guide poles	have a gasketed cap on the end of the pole	keep the cap closed except when gauging the liquid level or taking liquid samples
	slotted guide poles	have a gasketed float or other device to close off the liquid surface from the atmosphere	

IFR = internal floating roof EFR = external floating roof

* Rule references for the information in Table 4-1 are: §63.119(b) for option 1, §63.119(c) for option 2, and §63.119(d) for option 3.

Option 4: Compliance using a control device

(A) Percent reduction

If you use the percent reduction option to comply with Subpart MMM, you must demonstrate initial compliance by determining the efficiency of the control device based on **either** of the following:

- performance test data [§63.1365(d)(1)(i)]
- design evaluation [§63.1365(d)(1)(ii)]

Sections 63.1365(b)(1) through (11) specify test methods and procedures.

Performance test procedures:

If you send emissions from both a storage vessel and process vents to the same control device, you may demonstrate initial compliance for the storage vessel using the results of the test you conducted to show compliance with the process vent standards, provided that the test showed a percent reduction ≥95 percent [§63.1365(d)(1)(i)(C)].

If you elect to conduct a test specifically for the emissions from the storage vessel, the test must be conducted at the reasonably expected maximum filling rate [§63.1365(d)(1)(i)(A)].

Design evaluation procedures:

If you choose to demonstrate initial compliance by conducting a design evaluation, you must document how you demonstrate that your control device achieves the required control efficiency when the storage vessel is filled at the reasonably expected maximum filling rate. The parameters to consider in design evaluations for different types of control devices are described in §63.1365(a)(1).

(B) Outlet concentration

If you're complying with Subpart MMM using the outlet concentration option, you demonstrate initial compliance by conducting a performance test to show the outlet TOC concentration is ≤20 ppmv [§63.1365(a)(6) and (d)(2)].

Sections 63.1365(b)(1) through (11) specify test methods and procedures.

(C) Flare

When a flare is the control device, you demonstrate initial compliance by doing **all** of the following:

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- determining visible emissions using EPA Method 22 of 40 CFR part 60, Appendix A, for a 2-hour observation period [§63.1365(a)(3) and (d)(4)]. Flares must produce no visible emissions, except for a period of 5 minutes during any 2 consecutive hours [§63.11(b)(4) of subpart A]
- determining under absolute or hypothetical peak-case conditions, the net heating value of gas being combusted and its exit velocity as specified in §63.11(b)(6) through (8) of the General Provisions [§63.1365(a)(3) and (d)(4)]

(E) The alternative standard

When using the alternative standard in §63.1362(c)(4), your outlet TOC concentration must be ≤20 ppmv, and the outlet HCl and Cl_2 concentration must be ≤20 ppmv.

You demonstrate initial compliance with these values by having the monitoring equipment operational on the compliance date (see the discussion of monitoring requirements for the alternative standard later in this chapter, [page x]. In addition, if you intend to calibrate the monitor using the predominant HAP, you will have to use EPA Method 18 to determine the predominant HAP [§63.1365(a)(5) and (d)(6)].

How do I comply when my control device needs repairs [options 4 (A, B, C, and E)]?

Your storage vessel is exempt from Subpart MMM during periods of routine maintenance on the storage vessel control device, provided that the routine maintenance does not exceed 240 hr/yr [§63.1365(d)(7)].

You demonstrate initial compliance with the provisions by including anticipated periods of planned routine maintenance for the first reporting period in the Notification of Compliance Status report as discussed in "What reports must I submit"of this chapter.

What monitoring must I do for my storage vessels?

Your monitoring requirements depend on the compliance option you select. A summary of the monitoring requirements for each compliance option follows:

If you're complying using ...	Then your monitoring requirements include ...	You must monitor at this frequency...
Option 1, 2 or 3	various inspections and measurements	typically annually and every time the storage vessel is emptied and degassed
Option 4 (A or B)	monitor one or more control device operating parameters such as temperature and flow rate	every 15 minutes
Option 4 (C)	monitor presence of pilot flame	every 15 minutes
Option 4 (E)	monitor outlet TOC and, if appropriate, HCl/Cl_2 concentrations	every 15 minutes

Additional details for each option are provided below.

Options 1 or 3: Monitoring for internal floating roofs (IFRs)

If you comply with option 1 or 3, your **monitoring** requirements are as follows [§63.120(a) as cross-referenced from §63.1365(d)(3)]:

If your IFR has a ...	And you visually inspect the ...	Then monitor...	For ...	According to these sections of the rule...
Double-seal system (Option A)	IFR, the primary and secondary seal, gaskets, slotted membranes, and sleeve seals (if any)	each time the vessel is emptied and degassed, **and** at least once every 5 years after the compliance date	• defects in the IFR • holes, tears, or other openings in the seal or seal fabric • gaskets that no longer close off the liquid surface to the atmosphere • slotted membranes with more than 10 percent open area	§63.120(a)(3)(i) and (a)(7)

If your IFR has a ...	And you visually inspect the ...	Then monitor...	For ...	According to these sections of the rule...
Double-seal system (option B)	secondary seal through manholes and roof hatches on the fixed roof.	at least once every 12 months after initial fill, or at least once every 12 months after the compliance date	• IFRs that aren't resting on the surface of the liquid or the leg supports • liquid on the IFR • detached seal • holes or tears in the seal fabric • visible gaps between the seal and the wall of the storage vessel	§63.120(a)(3)(ii) and (a)(4)
	IFR, the primary and secondary seal, gaskets, slotted membranes, and sleeve seals (if any)	each time the vessel is emptied and degassed, and at least once every 10 years after the compliance date, the primary and secondary seals, gaskets, slotted membranes, and sleeve seals (if any)	• defects in the IFR • holes, tears, or other openings in the seal or seal fabric • gaskets that no longer close off the liquid surface to the atmosphere • slotted membranes with more than 10 percent open area	§63.120(a)(3)(iii) and (a)(7)
a single-seal system	IFR and the seal through manholes and roof hatches on the fixed roof	at least once every 12 months after initial fill, or at least once every 12 months after compliance date	• IFRs that aren't resting on the surface of the liquid or the leg supports • liquid on the IFR • detached seal • holes or tears in the seal fabric • visible gaps between the seal and the wall of the storage vessel	§63.120(a)(2)(i) and (a)(4)

If your IFR has a ...	And you visually inspect the ...	Then monitor...	For ...	According to these sections of the rule...
	IFR, the seal, gaskets, slotted membranes, and sleeve seals (if any)	each time the storage vessel is emptied and degassed, and at least once every 10 years after compliance date	• defects in the IFR • holes, tears, or other openings in the seal or seal fabric • gaskets that no longer close off the liquid surface to the atmosphere • slotted membranes with more than 10 percent open area	§63.120(a)(2)(ii)and (a)(7)

Note: Subpart MMM designates some different definitions and compliance dates than are used in §63.120 of subpart G. These differences are noted in §63.1362(d)(2)(i), (iv), and (v).

Conditions found during annual inspections must be repaired within 45 days after performing the inspection (unless you get an extension) [§63.120(a)(4)]. Conditions found in the inspection after emptying and degassing the storage vessel must be repaired before refilling the storage vessel with organic HAP [§63.120(a)(7)].

Option 2: Monitoring for external floating roofs (EFRs)

If you comply with option 2, your **monitoring** requirements are as follows [§63.120(b) as cross-referenced from §63.1365(d)(3)]:

For EFRs with the following features...	Monitor the following...	At this frequency ...[a]	According to this section of the rule...
All EFRs	visually inspect the roof, seals, and fittings	each time the vessel is emptied and degassed	§63.120(b)(10)
EFR with primary and secondary seals	measure[b] gap between vessel wall and primary seal	during the hydrostatic testing of the vessel or by the compliance date, whichever occurs last, and at least every 5 years thereafter	§63.120(b)(1)(i)
	measure[b] gap between vessel wall and secondary seal	annually	§63.120(b)(1)(iii)
	inspect integrity of primary seal	every 5 years	§63.120(b)(5)
	inspect integrity of secondary seal and inspect for proper fit	annually	§63.120(b)(6)

For EFRs with the following features...	Monitor the following...	At this frequency ...[a]	According to this section of the rule...
EFR with liquid-mounted or metallic shoe primary seal and no secondary seal[c]	measure[b] gap between vessel wall and primary seal	annually	§63.120(b)(1)(ii)
	inspect integrity of primary seal	annually	§63.120(b)(5)(ii)
	if a metallic shoe seal is used, measure vertical distance that one end of the metallic shoe extends above the liquid surface	annually	§63.120(b)(5)(i)

[a] All measurements and inspections that must be performed annually or every 5 years must also be performed before the compliance date.

[b] Seal gap measurements are made according to the method described in §63.120(b)(2) through (b)(4) of subpart G.

[c] When secondary seal is added, both the primary and secondary seals must be measured within 90 days and at the frequency specified for EFRs with primary and secondary seals [§63.120(b)(1)(iv)].

Note: Subpart MMM designates some different definitions and compliance dates than those used in §63.120 of subpart G. These differences are noted in §63.1362(d)(2)(i), (iv), and (v).

If you think performing seal gap measurements and inspection of a vessel may be unsafe, then you may get an extension to perform the measurements and inspection or empty and remove the storage vessel from service [§63.120(b)(7)].

Subpart MMM also requires that you repair defects identified during inspections if you're using option 2. The types of conditions that you must repair and the time allowed for the repairs are as follows:

When you're performing ...	And you find that...	Then, repair the condition ...
visual inspection of the roof, seals, and fittings after emptying and degassing the storage vessel	• the external floating roof has defects • the primary or secondary seal has holes, tears, or other openings in the seal or seal fabric • gaskets no longer close off the liquid surface from the atmosphere • the slotted membrane has more than 10 percent open area	before refilling the storage vessel with organic HAP [§63.120(b)(10)(i)]

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When you're performing ...	And you find that...	Then, repair the condition ...
seal gap measurement and visual inspection for all primary seals	• the total area of gaps between the vessel wall and primary seal exceeds 212 cm^2/meter of vessel diameter • there are gaps between the vessel wall and primary seal wider than 3.81 cm • there are holes in the mechanical shoe (if used), seal fabric, or seal envelope	within 45 days from the measurement or inspection (unless you get an extension) [§63.120(b)(8)]
additional measurement for metallic shoe primary seals	the metallic shoe seal doesn't have one end in the stored liquid and the other end extending at least 61 cm above the stored liquid surface	within 45 days from the measurement or inspection (unless you get an extension) [§63.120(b)(8)]
seal gap measurement and visual inspection for all secondary seals	• the total area of gaps between the vessel wall and secondary seal exceeds 21.2 cm^2/meter of vessel diameter • there are gaps between the vessel wall and secondary seal wider than 1.27 cm • the secondary seal does not completely cover the space between the roof edge and the space between the vessel wall • there are holes, tears, or other openings in the secondary seal or seal fabric	within 45 days from the measurement or inspection (unless you get an extension) [§63.120(b)(8)]

Option 4: Control Devices

(A&B) Monitoring for percent reduction or outlet concentration

The monitoring requirements for your storage vessel percent reduction and outlet concentration options are the same as the monitoring requirements for the process vent percent reduction and outlet concentration options and vary depending on the control device that you use. **Table 3-2** in **Chapter 3** summarizes the monitoring requirements for the percent reduction and outlet concentration options for various control devices [§63.1366(b)(1)].

(C) Monitoring for flares

If you control storage vessel emissions with a flare, you must monitor the presence of the flame. Monitoring must be conducted at least once every 15 minutes. You must calibrate the monitoring device used to detect the presence of the pilot flame annually [§63.1366(b)(1)(vi)].

(E) Monitoring for the alternative standard

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If you choose to comply with the alternative standard, your monitoring requirements include **all** of the following:

- monitor the outlet TOC and HCl/Cl_2 concentration at least once every 15 minutes
- adjust the monitored concentrations to account for supplemental gases, if any
- use a TOC monitor that meets the requirements of Performance Specification 8 or 9 of appendix B of 40 CFR part 60
- install, calibrate, maintain, and operate the monitors in accordance with §63.8 of the General Provisions

Note: You don't have to monitor the total HCl and Cl_2 concentration if you know that the control device does not generate HCl/Cl_2 [§63.1366(b)(5)].

Procedures for correcting the outlet concentrations to account for supplemental gases are specified in §63.1365(a)(7).

(D) Monitoring for boilers or process heaters

You're not required to do any monitoring if you route storage vessel emissions through a process heater or boiler that meets the criteria for compliance option 4 (D).

What records must I keep for my storage vessels?

To avoid repetition, all of your recordkeeping requirements are presented in **Chapter 8**.

What reports must I submit for my storage vessels?

To avoid repetition, all of your reporting requirements are presented in **Chapter 8**. Requirements specific to storage vessels are also shown in this section.

Depending on the compliance option you choose, the following notifications may be required:

If you're complying with ...	And you do the following ...	You must notify the Administrator...	According to this section of subpart G...
Option 1, 2 or 3	refill your storage vessels after visual inspection of the roof, seals, and fittings each time the vessel is emptied and degassed	30 days* before refilling your vessel	§§63.120(a)(5) and (b)(10)(ii)

If you're complying with ...	And you do the following ...	You must notify the Administrator...	According to this section of subpart G...
	perform seal gap measurements	30 days before performing the measurements	§63.120(b)(9)

a If the inspection prior to refilling is unplanned, the notification may be made at least 7 days before refilling.

For **Options 4 (A, B, C and E)**, you must also report the following:

When submitting your...	Include information on the ...	According to the following section of the rule...
Notification of Compliance Status report	anticipated periods of planned routine maintenance	§63.1368(f)(7)
Periodic reports	actual periods of planned routine maintenance during the reporting period **and** anticipated periods of planned routine maintenance for the next reporting period	§63.1368(g)(2)(v)

Note: §63.122 of subpart G contains additional reporting requirements for storage vessels. These reporting requirements were inadvertently omitted from the text of Subpart MMM published on June 23, 1999. However, Subpart MMM will be revised before the compliance date to include the §63.122 reporting requirements for storage vessels.

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Checklists for Inspection of Storage Vessels

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

There are five checklists for storage vessels. The table below explains which inspection checklists you should use for storage vessels.

If you follow ...	For a storage vessel with...	Then use the following checklists[a] ...	Starting on page ...
Option 1	a fixed roof and an internal floating roof	2	
Option 2	an external floating roof	3	
Option 3	an external floating roof converted to an internal floating roof	4	
Option 4(A or B)	a closed-vent system and control device that reduces emissions ≥95% by weight or reduces outlet concentrations ≤20 ppmv as TOC	Chapter 3, checklists 3 through 9, as applicable	
Option 4(C)	a flare	Chapter 3, checklist 10	
Option 4(E)	emissions routed to a control device to meet the alternative standard	5	

[a] Checklist 1 applies for all options.

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Checklist 1: Applicability (All Options)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance. If the requirement is not applicable (N/A), leave blank.

			Comments
1.	Does your tank or vessel meet the definition of a storage vessel? *§63.1361*	☐ Yes	☐ No
2.	Is your storage vessel part of a PAI process unit? *§63.1360(f)*	☐ Yes	☐ No
3.	Did you designate the storage vessel as a Group 1 vessel, or did your determine that the vessel meets Group 1 criteria? *§63.1362(c)(1)*	☐ Yes	☐ No

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Checklist 2: Requirements for a storage vessel with an internal floating roof (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance. If the requirement is not applicable (N/A), leave blank.

A. Monitoring and Inspection Requirements *§63.120(a) as cross-referenced from §63.1365(d)(3)* **Comments**

Note: The monitoring requirements include visual inspections and measurements. **Questions 3-5** apply for all visual inspections. **Questions 5-15** apply only for visual inspections performed each time the vessel is emptied and degassed.

1. If the storage vessel is equipped with a single-seal system: *§63.120(a)(2)*

   - Do you visually inspect the IFR and seal at least once every 12 months? ☐ Yes ☐ No
   - Do you visually inspect the IFR, the seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed, and at least once every 10 years? ☐ Yes ☐ No

2. If the storage vessel is equipped with a double-seal system, do **either** of the following apply: *§63.120(a)(3)*

   - Do you visually inspect the IFR, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed, and at least once every 5 years? ☐ Yes ☐ No
   - Do you visually inspect the IFR and the secondary seal at least once every 12 months, and do you visually inspect the IFR, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the vessel is emptied and degassed, and at least once every 10 years? ☐ Yes ☐ No

3. Does the floating roof float on the liquid surface? *§63.120(a)(4) and (7)* ☐ Yes ☐ No

   Note: The roof is not required to be floating on the liquid surface during initial filling, after the vessel has been completely emptied and degassed, and when completely emptied before being refilled.

4. Is the IFR in good condition (i.e., free of defects such as corrosion or pools of standing liquid)? *§63.120(a)(4) and (7)* ☐ Yes ☐ No

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Checklist 2: *(cont'd)*
Requirements for a storage vessel with an internal floating roof (Option 1)

A. Monitoring and Inspection Requirements *§63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
5. Inspect the seal(s) *§63.120(a)(4) and (7)*			
• Is the seal attached to the IFR?	☐ Yes	☐ No	
• Is the seal or seal fabric free of holes, tears, or other openings?	☐ Yes	☐ No	
• Does the seal make continuous contact with the wall of the storage vessel (i.e., no visible gaps between the seal and wall)?	☐ Yes	☐ No	
6. Is the IFR equipped with a liquid-mounted seal, metallic shoe seal, or a double seal? *§63.119(b)(3)*	☐ Yes	☐ No	
7. Inspect deck openings			
• If the IFR is non-contact, do the openings in the IFR project below the stored liquid surface (except automatic bleeder and rim space vents)? *§63.119(a)(5)(i)*	☐ Yes	☐ No	
• Is each opening in the IFR equipped with a gasketed cover (except automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains)? *§63.119(a)(5)(ii)*	☐ Yes	☐ No	
• Is each cover on an IFR opening closed (unless open for access)? *§63.119(a)(6)*	☐ Yes	☐ No	
• Are covers on each access hatch and automatic gauge float fastened air-tight when closed? *§63.119(a)(6)*	☐ Yes	☐ No	
• Do gaskets on IFR opening covers close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
8. Inspect automatic bleeder vents			
• Are the automatic bleeder vents closed (unless the roof is being floated off or landed on the roof leg supports)? *§63.119(a)(4)*	☐ Yes	☐ No	
• Are the automatic bleeder vents gasketed? *§63.119(a)(5)(iv)*	☐ Yes	☐ No	
• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	

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Checklist 2: *(cont'd)*
Requirements for a storage vessel with an internal floating roof (Option 1)

A. Monitoring and Inspection Requirements *§63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
9. Inspect rim space vents			
• Are the rim space vents closed except when either: *§63.119(a)(6)*			
▸ the roof is being floated off the roof leg supports ?	☐ Yes	☐ No	
▸ the pressure beneath the rim seal exceeds the manufacturer's recommended setting?	☐ Yes	☐ No	
• Are the rim space vents gasketed? *§63.119(a)(5)(v)*	☐ Yes	☐ No	
• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
10. Does each sample well have a slit fabric cover over at least 90 percent of the opening? *§63.119(a)(5)(iii)* and *§63.120(a)(7)*	☐ Yes	☐ No	
11. Does each ladder well have a gasketed sliding cover? *§63.119(a)(5)(vi)*	☐ Yes	☐ No	
12. Does each column well supporting the fixed roof have either a flexible fabric sleeve seal or gasketed sliding cover? *§63.119(a)(5)(vii)*	☐ Yes	☐ No	
13. Do ladder and column well gaskets close off the liquid surface to the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
14. If flexible fabric sleeve seals are used for column wells, are the fabric sleeves free of defects such as holes, tears, or gaps? *§63.120(a)(7)*	☐ Yes	☐ No	
15. If repairs were needed, did you complete them before refilling the storage vessel?	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??)*			**Comments**
Note: There are reporting and recordkeeping requirements for visual inspections.			
1. Did you record the occurrence of each visual inspection? *§63.123(c)*	☐ Yes	☐ No	
2. Do you maintain all records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 2: *(cont'd)*
Requirements for a storage vessel with an internal floating roof (Option 1)

B.	**Recordkeeping and Reporting Requirements** *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??)*			**Comments**
3.	If you detected a failure during an inspection, did you submit all of the following information in your periodic report: *§63.122(d)(1)(ii)*			
	• date of the inspection?	☐ Yes	☐ No	
	• identification of all storage vessels with failures?	☐ Yes	☐ No	
	• description of the failures?	☐ Yes	☐ No	
	• either the date and nature of repairs made or the date the vessel was emptied (if the vessel was not already empty)?	☐ Yes	☐ No	
4.	If your periodic report in "3" shows that you made a repair more than 45 days after the failure was found, does your next periodic report include documentation of the use of up to two 30-day extensions and the following information: *§63.122(d)(1)(iii)*			
	• identification of the storage vessel?	☐ Yes	☐ No	
	• description of the failure?	☐ Yes	☐ No	
	• documentation that alternate storage capacity was unavailable?	☐ Yes	☐ No	
	• schedule of actions taken to make repairs or empty the vessel as soon as possible?	☐ Yes	☐ No	
	• date the storage vessel was emptied and nature of and date repair was made?	☐ Yes	☐ No	
5.	If you refilled a storage vessel after it was emptied and degassed, did you submit a report notifying the Administrator at least 30 days before the vessel was refilled? *§63.120(a)(5)*	☐ Yes	☐ No	

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Checklist 3: Requirements for a storage vessel with an external floating roof (Option 2)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring and Inspection Requirements *§63.120(b) as cross-referenced from §63.1365(d)(3)*

			Comments
Note: The monitoring requirements include visual inspections and seal gap measurements.			
1. Do you measure the seal gap between the vessel wall and the primary seal at least every 5 years? *§63.120(b)(1)(i)*	☐ Yes	☐ No	
2. Do you measure the seal gap between the vessel wall and the secondary seal at least once per year? *§63.120(b)(1)(iii)* *Note: If your EFR does not have a secondary seal, §63.120(b)(1)(ii) specifies the seal gap measurements for the primary seal must be once per year.*	☐ Yes	☐ No	
3. Do you measure the seal gaps, if any, when the EFR is not resting on the roof leg supports? *§63.120(b)(2)(i)*	☐ Yes	☐ No	
4. Do you measure the seal gaps, if any, around the entire circumference of the vessel in each place where a 0.32 centimeter (⅛ inch) diameter uniform probe passes freely between the wall and the seal? *§63.120(b)(2)(ii)*	☐ Yes	☐ No	
5. Do you determine the total surface area of each gap using probes of various widths to measure the gap accurately? *§63.120(b)(2)(iii)*	☐ Yes	☐ No	
6. If you determine that it is unsafe to perform the seal gap measurements, do either of the following apply: *§63.120(b)(7)*			
• Do you measure the gaps no later than 30 days after the determination?	☐ Yes	☐ No	
or			
• Do you remove the vessel from service within 45 days after the determination?	☐ Yes	☐ No	
Note: You may use up to 2 extensions of the 45-day limit provided you explain why it was unsafe to perform the seal gap measurement or inspection, document that alternate storage capacity is unavailable, and specify a schedule to ensure that the vessel is emptied as soon as practical.			

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Checklist 3: *(cont'd)*
Requirements for a storage vessel with an external floating roof (Option 2)

A. **Monitoring and Inspection Requirements** *§63.120(b) as cross-referenced from §63.1365(d)(3)*			**Comments**
7. Do you repair the seals no later than 45 days after the seal gap measurements indicate a failure (or empty the storage vessel)? *§63.120(b)(8)*	☐ Yes	☐ No	
8. Do you visually inspect the EFR, the primary seal, the secondary seal, and fittings each time the vessel is emptied and degassed? *§63.120(b)(10)*	☐ Yes	☐ No	
9. Does the EFR rest on the surface of the stored liquid? *§63.120(c)(3)* *Note: The roof is not required to be floating on the liquid surface during initial filling, after the vessel has been completely emptied and degassed, and when completely emptied before being refilled.*	☐ Yes	☐ No	
10. Is the EFR in good condition (i.e., free of defects such as corrosion and pools of standing liquid)? *§63.120(b)(10)(i)*	☐ Yes	☐ No	
11. Is there a secondary seal installed above the primary seal? *§63.120(b)(6)(i)*	☐ Yes	☐ No	
12. Inspect deck openings.			
• If the EFR is non-contact, do the openings in the EFR project below the stored liquid surface (except automatic bleeder and rim space vents)? *§63.119(c)(2)(i)*	☐ Yes	☐ No	
• Is each opening in the EFR equipped with a gasketed cover that forms a vapor-tight seal (except automatic bleeder vents, rim space vents, roof drains, and leg sleeves)? *§63.119(c)(2)(ii)*	☐ Yes	☐ No	
• Is each gasketed cover on any EFR opening closed (unless open for access)?	☐ Yes	☐ No	
• Are covers on each access hatch and gauge float well fastened air-tight when closed? *§63.119(c)(2)(iii)*	☐ Yes	☐ No	
• Do gaskets on EFR opening covers close off the liquid surface from the atmosphere? *§63.120(b)(10)(i)*	☐ Yes	☐ No	

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Checklist 3: *(cont'd)*

Requirements for a storage vessel with an external floating roof (Option 2)

A. Monitoring and Inspection Requirements *§63.120(b) as cross-referenced from §63.1365(d)(3)*			**Comments**
13. Inspect automatic bleeder vents.			
• Are the automatic bleeder vents closed (unless the roof is being floated off or landed on the roof leg supports)? *§63.119(c)(2)(iii)*	☐ Yes	☐ No	
• Are the automatic bleeder vents gasketed? *§63.119(c)(2)(v)*	☐ Yes	☐ No	
• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(b)(10)(i)*	☐ Yes	☐ No	
14. Inspect rim space vents.			
• Are the rim space vents closed except when: *§63.119(c)(2)(iv)*			
▸ the roof is being floated off the roof leg supports?	☐ Yes	☐ No	
▸ the pressure beneath the rim seal exceeds the manufacturer's recommending setting?	☐ Yes	☐ No	
• Are the rim space vents gasketed? *§63.119(c)(2)(v)*	☐ Yes	☐ No	
• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(b)(10)(i)*	☐ Yes	☐ No	
15. Is each roof drain covered with a slotted membrane fabric that covers at least 90 percent of the opening area? *§63.119(c)(2)(vi)*	☐ Yes	☐ No	
16. Is each unslotted guide pole well equipped with either a gasketed sliding cover or a flexible fabric sleeve seal that closes off the liquid surface from the atmosphere? *§63.119(c)(2)(vii)*	☐ Yes	☐ No	
17. Does each unslotted guide pole have on it's end a closed gasketed cap that closes off the liquid surface from the atmosphere (except when gauging the liquid level or taking liquid samples)? *§63.119(c)(2)(viii)*	☐ Yes	☐ No	
18. Does each gauge hatch and sample well have a closed gasketed cover that closes off the liquid surface from the atmosphere (except when open for access)? *§63.119(c)(2)(xi)*	☐ Yes	☐ No	

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Checklist 3: *(cont'd)*
Requirements for a storage vessel with an external floating roof (Option 2)

A. **Monitoring and Inspection Requirements** *§63.120(b) as cross-referenced from §63.1365(d)(3)*			**Comments**
19. Inspect the secondary seal and perform seal gap measurements.			
• Is the seal continuous and completely covering the space between the EFR and vessel wall? *§63.120(b)(6)(i)*	☐ Yes	☐ No	
• Are there no holes, tears, or other openings in the seal or seal fabric? *§63.120(b)(6)(ii)*	☐ Yes	☐ No	
• Are there no visible gaps between the seal and the wall of the storage vessel such that: *§63.120(b)(4)*			
▸ The total area of the gaps is less than 21.2 cm^2 per meter of vessel diameter?	☐ Yes	☐ No	
▸ The maximum gap width between the vessel wall and the seal does not exceed 1.27 cm?	☐ Yes	☐ No	
20. Inspect the primary seal and perform seal gap measurements.			
• Is the primary seal either a metallic shoe or liquid-mounted seal? *§63.119(c)(1)(ii)*	☐ Yes	☐ No	
• Does the primary seal form a continuous closure that completely covers the space between the vessel wall and EFR such that: *§63.120(b)(3)*			
▸ The total area of the gaps is less than 212 cm^2 per meter of vessel diameter?	☐ Yes	☐ No	
▸ The maximum gap width between the vessel wall and the seal does not exceed 3.81 cm?	☐ Yes	☐ No	
• Is the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used) free of holes, tears, or other openings? *§63.120(b)(5)(ii)*	☐ Yes	☐ No	
• If the primary seal is a metallic shoe seal:			
▸ Does the lower end of the metallic shoe extend into the stored liquid? *§63.120(b)(5)(i)*	☐ Yes	☐ No	
▸ Does the upper end of the metallic shoe seal extend a minimum vertical distance of 61 cm above the liquid surface? *§63.120(b)(5)(i)*	☐ Yes	☐ No	
▸ Is there a flexible coated fabric that spans the space between the metal shoe and the vessel wall?	☐ Yes	☐ No	
• If the primary seal is a liquid-mounted seal, is the seal in contact with the liquid between the storage vessel wall and EFR?	☐ Yes	☐ No	

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Checklist 3: *(cont'd)*
Requirements for a storage vessel with an external floating roof (Option 2)

B. Recordkeeping and Reporting Requirements *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??)*			**Comments**
1. Do your records indicate that you made seal gap measurements annually for the secondary seal and every 5 years for the primary seal? *§63.120(b)(1)(i) and (iii)*	☐ Yes	☐ No	
2. Did you record the date of the seal gap measurement, the raw data obtained, and calculations performed? *§63.123(d)*	☐ Yes	☐ No	
3. Did you record the occurrence of each visual inspection after a storage vessel was emptied and degassed?	☐ Yes	☐ No	
4. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
5. If you detected a failure in the seals, did you include the following in your periodic report: *§63.122(e)(1) and (e)(3)(ii)*			
• the date and results of the inspection?	☐ Yes	☐ No	
• the date and results of seal gap measurements?	☐ Yes	☐ No	
• the date and nature of the repair or the date the vessel was emptied?	☐ Yes	☐ No	
6. If your periodic report in "5" shows that you made a repair more than 45 days after the failure was found, does your next periodic report include documentation of the use of up to two 30-day extensions and the following information: *§63.120(b)(8) and §63.123(e)(2)*			
• identification of the storage vessel?	☐ Yes	☐ No	
• description of the failure?	☐ Yes	☐ No	
• documentation that alternate storage capacity was unavailable?	☐ Yes	☐ No	
• schedule of actions taken to make repairs or empty the vessel as soon as possible?	☐ Yes	☐ No	
• date the storage vessel was emptied and nature of and date repair was made?	☐ Yes	☐ No	
7. If you detected a failure during a visual inspection, did you submit the following information about your visual inspection in your periodic report: *§63.123(e)(3)(ii)*			
• date of the inspection?	☐ Yes	☐ No	
• identification of all storage vessels with failures?	☐ Yes	☐ No	
• description of the failures?	☐ Yes	☐ No	
• date and nature of repair ro date when the vessel was emptied?	☐ Yes	☐ No	

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Checklist 3: *(cont'd)*
Requirements for a storage vessel with an external floating roof (Option 2)

B. Recordkeeping and Reporting Requirements *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??)*			**Comments**
8. If you refilled a storage vessel after it was emptied and degassed, did you submit a report showing that you notified the Administrator at least 30 days before the vessel was refilled? *§63.120(b)(10)(ii)*	☐ Yes	☐ No	

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Checklist 4: Requirements for a storage vessel with an external floating roof converted to an internal floating roof (Option 3)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring and Inspection Requirements *§63.120(a) as cross-referenced from §63.1365(d)(3)* **Comments**

Note: The monitoring requirements include visual inspections and measurements. **Questions 3-5** apply to all inspections. **Questions 6-14** apply only for visual inspections performed each time the vessel is emptied and degassed.

1. If the storage vessel is equipped with a single-seal system: *§63.120(a)(2)*

   - Do you visually inspect the floating deck and seal at least once every 12 months? ☐ Yes ☐ No
   - Do you visually inspect the floating deck, the seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed, and at least once every 10 years? ☐ Yes ☐ No

2. If the storage vessel is equipped with a double-seal system, do **either** of the following apply: *§63.120(a)(3)*

   - Do you visually inspect the floating deck, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed, and at least once every 5 years? ☐ Yes ☐ No
   - Do you visually inspect the floating deck and the secondary seal at least once every 12 months, and do you visually inspect the floating deck, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the vessel is emptied and degassed, and at least once every 10 years? ☐ Yes ☐ No

3. Does the floating deck rest on the liquid surface? ☐ Yes ☐ No
   §63.120(a)(4) and (7)

   Note: The roof is not required to be floating on the liquid surface during initial filling, after the vessel has been completely emptied and degassed, and when completely emptied before being refilled.

Checklist 4: *(cont'd)*
Requirements for a storage vessel with an external floating roof converted to an internal floating roof (Option 3)

A. **Monitoring and Inspection Requirements** *§63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
4. Is the floating deck in good condition (i.e., free of defects such as corrosion or pools of standing liquid)? *§63.120(a)(4) and (7)*	☐ Yes	☐ No	
5. Inspect the seal(s). *§63.120(a)(4) and (7)*			
• Is the seal attached to the floating deck?	☐ Yes	☐ No	
• Is the seal or seal fabric free of holes, tears, or other openings?	☐ Yes	☐ No	
• Does the seal make continuous contact with the wall of the storage vessel (i.e., no visible gaps between the seal and wall)?	☐ Yes	☐ No	
6. Is the floating deck equipped with a liquid-mounted seal, metallic shoe seal, or a double seal? *§63.119(b)(3)*	☐ Yes	☐ No	
7. Inspect deck openings.			
• If the floating deck is non-contact, do the openings in the floating deck project below the stored liquid surface (except automatic bleeder and rim space vents)? *§63.119(c)(2)(i)*	☐ Yes	☐ No	
• Is each opening in the floating deck equipped with a gasketed cover that forms a vapor-tight seal (except automatic bleeder vents, rim space vents, roof drains, and leg sleeves)? *§63.119(c)(2)(ii)*	☐ Yes	☐ No	
• Is each gasketed cover on any deck opening closed (unless open for access)? *§63.119(c)(2)(ii)*	☐ Yes	☐ No	
• Are covers on each access hatch and gauge float well fastened air-tight when closed? *§63.119(c)(2)(ii)*	☐ Yes	☐ No	
• Do gaskets on deck opening covers close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
8. Inspect automatic bleeder vents.			
• Are the automatic bleeder vents closed (unless the roof is being floated off or landed on the roof leg supports)? *§63.119(c)(2)(iii)*	☐ Yes	☐ No	
• Are the automatic bleeder vents gasketed? *§63.119(c)(2)(v)*	☐ Yes	☐ No	
• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	

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Checklist 4: *(cont'd)*
Requirements for a storage vessel with an external floating roof converted to an internal floating roof (Option 3)

A. Monitoring and Inspection Requirements *§63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
9. Inspect rim space vents.			
• Are the rim space vents closed except when either: *§63.119(c)(2)(iv)*			
▸ the roof is being floated off the roof leg supports?	☐ Yes	☐ No	
▸ the pressure beneath the rim seal exceeds the manufacturer's recommending setting?	☐ Yes	☐ No	
• Are the rim space vents gasketed? *§63.119(c)(2)(v)*	☐ Yes	☐ No	
• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
10. Is each roof drain covered with a slotted membrane fabric that covers at least 90 percent of the opening area? *§63.119(c)(2)(vi)*	☐ Yes	☐ No	
11. Is each unslotted guide pole well equipped with either a gasketed sliding cover or a flexible fabric sleeve seal that closes off the liquid surface from the atmosphere? *§63.119(c)(2)(vii)*	☐ Yes	☐ No	
12. Does each unslotted guide pole have on it's end a closed gasketed cap that closes off the liquid surface from the atmosphere (except when gauging the liquid level or taking liquid samples)? *§63.119(c)(2)(viii)*	☐ Yes	☐ No	
13. Does each gauge hatch and sample well have a closed gasketed cover that closes off the liquid surface from the atmosphere (except when open for access)? *§63.119(c)(2)(ix)*	☐ Yes	☐ No	
14. Did you complete any repairs of failures detected during inspections before refilling the storage vessel?	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??)*			**Comments**
Note: There are reporting and recordkeeping requirements for visual inspections.			
1. Did you record the occurrence of each visual inspection? *§63.123(e)*	☐ Yes	☐ No	
2. Do you maintain all records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

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Checklist 4: *(cont'd)*
Requirements for a storage vessel with an external floating roof converted to an internal floating roof (Option 3)

B. **Recordkeeping and Reporting Requirements** *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??)*			**Comments**
3. If you detected a failure during an inspection, did you submit the following information in your periodic report: *§63.122(d)(1)(ii)*			
• date of the inspection?	☐ Yes	☐ No	
• identification of all storage vessels with failures?	☐ Yes	☐ No	
• description of the failures?	☐ Yes	☐ No	
• either the date and nature of repairs made or the date the vessel was emptied (if the vessel was not already empty)?	☐ Yes	☐ No	
4. If your periodic report in "3" shows that you made a repair more than 45 days after the failure was found, does your next periodic report include documentation of the use of up to two 30-day extensions and the following information: *§63.122(d)(1)(iii)*			
• identification of the storage vessel?	☐ Yes	☐ No	
• description of the failure?	☐ Yes	☐ No	
• documentation that alternate storage capacity was unavailable?	☐ Yes	☐ No	
• schedule of actions taken to make repairs or empty the vessel as soon as possible?	☐ Yes	☐ No	
• date the storage vessel was emptied and nature of and date repair was made?	☐ Yes	☐ No	
5. If you refilled a storage vessel after it was emptied and degassed, did you submit a report notifying the Administrator at least 30 days before the vessel was refilled? *§63.120(a)(5)*	☐ Yes	☐ No	

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Checklist 5: Requirements for a storage vessels meeting the alternative standard (Option 4E)

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements			Comments
1. Did you install a CEMS to monitor and record the outlet TOC concentration at least once every 15 minutes? *§63.1366(b)(5)*	☐ Yes	☐ No	
2. If you are using a combustion control device that generates HCl, did you install a CMS to monitor and record the outlet HCl concentration at least once every 15 minutes?	☐ Yes	☐ No	
3. Is the monitoring device calibrated at a minimum with quarterly cylinder gas audits? *§63.1366(b)(5)*	☐ Yes	☐ No	
4. If supplemental gases are introduced before the control device, is the monitored concentration corrected? *§63.1366(b)(5)*	☐ Yes	☐ No	
5. Is the CEMS data reduced to operating day or operating block averages? *§63.1366(b)(2)*	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			Comments
1. Do your records show that you calibrate your monitor in accordance with your quality control program? *§§63.1366(b)(3) and 63.8(d)*	☐ Yes	☐ No	
2. Have your recorded any maintenance performed on the CEMS?*§63.1367(b)(3)*	☐ Yes	☐ No	

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Checklist 5: *(cont'd)*
Requirements for a storage vessels meeting the alternative standard (Option 4E)

B.	**Recordkeeping and Reporting Requirements**			**Comments**
3.	Do you have records of: *§§63.1367(a)(4) and 63.10(c)(1)-(14)*			
	• All required CEMS measurements (including monitoring data recorded during unavoidable CEMS breakdowns and out-of-control periods)?	☐ Yes	☐ No	
	• The date and time of each period when the CEMS is inoperative except for zero (low-level) and high-level checks?	☐ Yes	☐ No	
	• The date and time of each period when the CEMS is out of control (e.g., calibration drift exceeds specification, CEMS fails cylinder gas audit)?	☐ Yes	☐ No	
	• The date and start and end time of each period of excess emissions and parameter monitoring exceedances occurring during startups, shutdowns, malfunctions, and at other times?	☐ Yes	☐ No	
	• The nature and cause of any malfunction of your monitor (if known), and corrective actions taken?	☐ Yes	☐ No	
	• The total process operating time during the reporting period?	☐ Yes	☐ No	
	• All procedures, including calibrations, that are part of your quality control program?	☐ Yes	☐ No	
4.	Have you recorded all maintenance and calibration checks performed on the CEMS? *§63.1367(b)(3)*	☐ Yes	☐ No	
5.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
6.	Did you notify the Administrator at least 60 days before conducting a performance evaluation of your CEMS? *§§63.1368(d) and 63.8(e)(2)*	☐ Yes	☐ No	
7.	Did you include in your periodic report a description of the routine maintenance planned for the control device for the next reporting period and actually performed in the last reporting period? *§§63.1367(b)(6)(viii) and 63.1368(g)(2)(v)*	☐ Yes	☐ No	
8.	Do you submit all of the following in your periodic reports if exceedances or excursions are ≥ 1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data for all operating days or operating blocks when the average TOC or HCl/Cl_2 concentration exceeds 20 ppmv?	☐ Yes	☐ No	
	• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	

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Checklist 5: ***(cont'd)***
Requirements for a storage vessels meeting the alternative standard (Option 4E)

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What wastewater streams are covered?

Subpart MMM covers "Group 1" wastewater streams that are discarded from a PAI process unit that is at an affected source. A "Group 1" wastewater stream is any wastewater stream that meets either of the following conditions: [§63.1361]

- Is generated from a PAI process and contains either:
  - contains an annual average concentration of Table 9 compounds of at least 5 ppmw and has an average flow rate of 0.02 L/min or greater; or

  Note: Table 9 compounds are those compounds listed on Table 9 of subpart G of the HON.

  - contains a total concentration of Table 9 compounds of at least 10,000 ppmw at any flow rate.
- Is generated from a PAI process unit as a result of maintenance activities and contains at least 5.3 Mg of HAP per individual discharge event.

Subpart MMM also covers residuals removed from a Group 1 wastewater stream.

Definition. *Residual* means any liquid or solid material containing Table 9 compounds that is removed from a wastewater stream by a waste management unit or treatment process that does not destroy organics.

What types of wastewater components are covered?

Wastewater systems consist of the following three types of components, each with specific compliance requirements:

- Waste management units

Definition. *Waste management unit* means the equipment, structure(s), and/or device(s) used to convey, store, treat, or dispose of wastewater streams or residuals.

- Treatment processes

Note: treatment processes are a subset of waste management units that remove or destroy the organics in a wastewater.

- Air pollution control devices

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What waste management units are covered?

Subpart MMM covers all of the following waste management units:

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

What wastewater streams are exempt?

Any wastewater stream that meets any of the following conditions is not subject to Subpart MMM: [§§63.132(a)(3) and 63.1360(d)(4)]

- Group 2 wastewater streams
- wastewater streams that are not part of a PAI process unit
- laundry water
- storwater from segregated sewers
- water from fire-fighting and deluge systems, including testing of such systems
- spills
- water from safety showers
- noncontact steam boiler blowdown and condensate

Note: A Group 2 wastewater stream is any wastewater stream that does not meet the definition of a Group 1 wastewater stream.

What are my compliance options for waste management units?

You have several emission suppression compliance options for the different types of waste management units.

Wastewater tanks

Definition. *Wastewater tank* **means a stationary waste management unit that is designed to contain an accumulation of wastewater and residuals and is constructed primarily of nonearthen materials which provide structural support. Wastewater tanks used for flow equalization are included in this definition.**

If your wastewater tank receives, manages, or treats a Group 1 wastewater stream or residual, you have three compliance options if your wastewater tank meets either of the following: [§63.133(a)]

- tank size ≥151 m^3 storing wastewater with maximum true vapor pressure ≥5.2 kPa
- tank size ≥75 m^3 and <151 m^3 storing wastewater with maximum true vapor pressure ≥13.1 kPa
- tanks of any size storing any Group 1 wastewater stream or residual if the tank is used for any of the following:
  - heating wastewater
  - treating by means of an exothermic reaction
  - sparging

Your three compliance options for these wastewater tanks are:

Option 1: Use a fixed roof and control device [§63.133(a)(2)(i)].

Use a fixed roof and a closed-vent system that routes HAP vapors to control device.

Option 2: Use a fixed roof and an internal floating roof [§63.133(a)(2)(ii)]

Option 3: Use an external floating roof [§63.133(a)(2)(iii)]

For all other wastewater tanks that receive, manage, or treat a Group 1 wastewater system, you must use a fixed roof tank (or any of the above options). [§63.133(a)(1)].

Surface impoundments

A waste management unit which is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials (although it may be lined with manmade materials), which is designed to hold an accumulation of liquid wastes or waste containing free liquids. A surface impoundment is used for the treatment, storing, or disposing of wastewater or residuals, and is not an injection well. Examples of surface impoundments are equalization, settling, and aeration pits, ponds, and lagoons. The control requirements of wastewater tanks holding Group 1 process wastewater include the following:

1. Use a cover and a closed-vent system that routes organic HAP vapors to a control device.

2. Use a floating flexible membrane which must float on the surface of the liquid and form a continuous barrier over the entire surface area of the liquid. Requirements are given for the fabrication of the membrane material. The flexible floating membrane must be installed properly, have a closure device, and emergency cover drains. The closure device must

minimize exposure of HAP's to the atmosphere, and be operated according to specified work practices.

Containers

Any portable waste management unit that has a capacity greater than or equal to 0.1 cubic meters 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. The control requirements of containers holding Group 1 process wastewater are dependent on container capacity. Table X provides the container capacity with a corresponding summary of control requirements.

TABLE 5-1. Container Emissions Control Requirements

Capacity (m3)	Control Requirements
0.1 ≤ capacity < 0.42	Container must meet DOT specifications and testing requirements under 49 CFR Part 178; or The cover and all openings must be maintained without leaks as specified in §63.148 of subpart G
≥ 0.42	The cover and all openings must be maintained without leaks as specified in §63.148 of subpart G; and Submerged fill pipes which meet specifications (e.g., fill pipe outlet can extend no more than six inches or within two fill pipe diameters of the bottom of the container) must be used; and Emissions of organic HAP's must be reduced using an enclosure. The enclosure must be operated with a closed-vent system routed to a control device.

Individual drain systems

Stationary waste management units used to convey wastewater streams or residuals to a waste management unit or to discharge or disposal. The term includes: hard piping; all process drains and junction boxes; and associated sewer lines, other junction boxes, manholes, sumps, and lift stations conveying wastewater streams or residuals. The control requirements of individual drain systems holding Group 1 process wastewater include the following:

1. Reduce emissions of organic HAP's using a cover on each opening in the individual drain system and, if vented, a closed vent system that routes organic HAP vapors to a process or control device.

2. Reduce emissions of organic HAP's using drains equipped with water seal controls or a tightly fitting cap or plug which are operated according to specified work practices; and junction boxes equipped with a cover and, if vented, a closed-vent system that routes organic HAP vapors to a process or a control device. Junction boxes that are fed by gravity or are operated

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with slight fluctuations in the liquid level are not required to use a closed-vent system routing emissions to a process or control device. Instead the vent pipe is to be operated according to specified equipment standards and work practices.

Oil-water separators

A waste management unit that separates and removes oils, scum, and solids from the wastewater by gravity. Most of the separation occurs as the wastewater stream passes through a quiescent zone in the unit where oils and scum with specific gravities less than water float to the top of the aqueous phase, while heavier solids sink to the bottom. Some of the organic compounds contained in the wastewater will partition to the oil phase and then can be removed with the skimmed oil, leaving the separated water. The control requirements of oil-water separators holding Group 1 process wastewater include the following:

1. Reduce emissions of organic HAP's using a fixed roof and a closed-vent system that routes organic HAP vapors to a process or control device.

2. Reduce emissions of organic HAP's using a floating roof. Where a floating roof is infeasible, such as over a weir mechanism, a fixed roof and closed-vent system routed to a control device may be used

3. Use an equivalent means of approved emission limitation.

What compliance options do I have for my treatment processes?

Treatment processes are techniques that remove or destroy the organics in a wastewater stream. Subpart MMM includes several compliance options and specifies how treatment processes may be used to achieve compliance with one or more of the compliance options. The compliance options may be used individually or in combination to achieve the required emission control.

For any new or existing sources, you have seven compliance options for wastewater streams:

Option 1: Reduce, by removal or destruction, the total concentration of Table 9 compounds to less than 50 ppmw. [Note: cannot use biological treatment processes or dilution with this option]

Option 2: Use a design steam stripper with specific design and operating requirements.

Option 3: Use a waste management unit or treatment process to reduce, by removal or destruction, the total mass flow rate of Table 9 compounds by at least 99 percent.

Option 4: Use a waste management unit or treatment process to reduce, by removal or destruction, the mass flow rate of each Table 9 compounds by at least the fraction removal (Fr) values specified in Table 9.

Option 5: Use a waste management unit or treatment process to achieve the required mass removal (RMR) of Table 9 compounds.

Option 6: Use a biological treatment unit that achieves a RMR of at least 95 percent for all compounds listed on Table 9. [Note: all Group 1 and Group 2 wastewater streams entering the biological treatment unit that are subject to subpart F must be included in the demonstration of 95 percent removal]

Option 7: Treat the wastewater in a permitted Resource Conservation and Recovery Act (RCRA) hazardous waste incinerator, a RCRA permitted process heater or boiler, or discharge to a properly permitted underground injection well.

For new sources, you have the following compliance option in addition to the six compliance options identified above:

Option 8: Reduce the mass flow rate of Table 9 compounds from all wastewater streams by 99 percent if the total mass flow rate from the source is 2,100 Mg/yr or more.

How do I show initial compliance with the wastewater system requirements?

What monitoring must I do for my wastewater systems?

Your monitoring requirements depend on the compliance option you select. Details for each options are provided later in this chapter. A summary of the monitoring requirements for each compliance option is as follows:

If you comply with ...	your monitoring requirements include ...	at this frequency...
options 1, 2 or 3	various inspections and measurements	
option 4	no monitoring required	

Note 1: The PAI rule designates some different definitions and compliance dates than are used in §63.120 of subpart G. These differences are noted in §63.1362(d)(2)(i), (iv), and (v).

Note 2: Conditions found during annual inspections must be repaired within 45 days after performing the inspection (unless you get an extension) §63.120(a)(4)]. Conditions found in the inspection after emptying and degassing the storage vessel must be repaired before refilling the storage vessel with organic HAP {§63.120(a)(7)].

Note 2: If you think performing seal gap measurements and inspection of a vessel may be unsafe, then you may get an extension to perform the measurements and inspection or empty and remove the storage vessel from service [§63.120(b)(7)].

What records must I keep for my wastewater systems?

To avoid repetition in every chapter, all of your recordkeeping requirements are presented in Chapter 8.

What reports must I submit for my wastewater systems?

To avoid repetition in every chapter, all of your reporting requirements are presented in Chapter 8.

Checklists for Wastewater System Inspections

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

The table below explains which inspection checklists you should use for waste management systems.

If you use a ...	That is controlled using ...	Then use these checklists ...	Starting on page ...
wastewater tank	a cover with a closed-vent system routed to a control device (see next table)	Chapter 3, checklist 2 (see next table)	
	an external floating roof	Chapter 4, checklist 3	
	a fixed roof with an internal floating roof	Chapter 4, checklist 2	
	an external floating roof converted to an internal floating roof	Chapter 4, checklist 4	
surface impoundments	a cover with a closed-vent system routed to a control device (see next table)	2 and Chapter 3, checklist 2 (see next table) and checklists 3 through 9 as applicable	
	a floating flexible membrane cover	2	
containers	a cover	3	
individual drains	a cover and, if vented, routed to a process or through a closed-vent system to a control device(see next table)	4 and Chapter 3, checklist 2 (see next table) and checklists 3 through 9 as applicable	
	water seal controls or a tightly fitting cap or plug for drains, tightly fitting solid covers for junction boxes, and covers or enclosures for sewer lines	4	
oil-water separators	a fixed roof and closed-vent system routed to a control device (see next table)	5 and Chapter 3, checklist 2 (see next table) and checklists 3 through 9 as applicable	
	a floating roof	5	

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The table below explains which checklists you should use for control devices.

The wastewater system emission streams are conveyed by a closed-vent system to the following control device ...	Then use the following checklists from Chapter 3:
a scrubber	3
a condenser	4
a regenerative carbon adsorber	5
a nonregenerative carbon adsorber	6
a thermal incinerator	7
a catalytic incinerator	8
a boiler or process heater with a design heat input of at least 44 megawatts or for which the emission stream is introduced with the primary fuel	9
a flare	10

For the following compliance options...	Then use these checklists:
Reduce the concentration of Table 9 compounds to less than 50 ppmw	1 and 2
Use a steam stripper with specific design and operating requirements	1 and 3
Reduce the mass flow rate of Table 9 compounds by at least 99 percent	1 and 4
Reduce the mass flow rate of Table 9 compounds by an amount equal to or greater thant he fraction removed (Fr) value in Table 9	1 and 5
If a source using biotreatment for at least one wastewater stream that is Group 1 for Table 9 compounds, achieve a required mass removal greater than or equal to 95 percent for Table 9 compounds	1 and 6
Treat with permitted Resource Conservation and Recovery Act (RCRA) units or by discharging to a permitted underground injection well	1 and 11

Checklist 1: Requirements for all wastewater tanks

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring and Inspection Requirements			**Comments**
1. Do you inspect all openings (e.g., access hatches, sampling ports, and gauge wells) to make sure they are maintained in a closed position (e.g., covered by a lid) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair)?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Do you record the occurrence of each semiannual visual inspection for improper work practices?	☐ Yes	☐ No	
2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?	☐ Yes	☐ No	
3. For each inspection during which a control equipment failure was identified, do you record and report the following in the Periodic Report:			
• Date of the inspection	☐ Yes	☐ No	
• Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?	☐ Yes	☐ No	
• Description of the failure?	☐ Yes	☐ No	
• Description of the nature of the repair?	☐ Yes	☐ No	
• Date the repair was made?	☐ Yes	☐ No	

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Checklist 2: Requirements for all surface impoundments

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

1. Monitoring and Inspection Requirements			**Comments**
1. Do you inspect all access hatches and all other openings to make sure they are closed when not in use?	☐ Yes	☐ No	
2. Do you inspect all control equipment to make sure it is functioning properly (e.g., seals, joints, lids, covers, and doors are not cracked, gapped, or broken)?	☐ Yes	☐ No	
3. For surface impoundments with floating flexible membrane covers, is the floating flexible membrane cover made out of one of the following: • high density polyethylene with a thickness of no less than 2.5 millimeters; or • a material that has an equivalent organic permeability and integrity for the intended service life of the floating cover	☐ Yes	☐ No	
3. For surface impoundments with floating flexible membrane covers, are all openings equipped with closure devices such that there are no visible cracks, holes, gaps, or other open spaces between the perimeter of the cover opening and the closure device when it is closed?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Do you record the occurrence of each semiannual visual inspection for improper work practices?	☐ Yes	☐ No	
2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?	☐ Yes	☐ No	

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Checklist 2: *(cont'd)*
Requirements for all surface impoundments

B. Recordkeeping and Reporting Requirements			**Comments**
3. For each inspection during which a control equipment failure was identified, do you record and report the following in the next Periodic Report:			
• Date of the inspection	☐ Yes	☐ No	
• Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?	☐ Yes	☐ No	
• Description of the failure?	☐ Yes	☐ No	
• Description of the nature of the repair?	☐ Yes	☐ No	
• Date the repair was made?	☐ Yes	☐ No	

Checklist 3: Requirements for all containers

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

1. Monitoring and Inspection Requirements			**Comments**
1. For containers with capacity greater than or equal to 0.1 but less than or equal to 0.42 cubic meters, do you meet **all** of the following requirements:			
• the container meets existing DOT specifications and testing requirements or the requirements of § 63.148 of subpart G?	☐ Yes	☐ No	
• the cover and all openings are maintained in a closed position (e.g., covered by a lid) when not in use (e.g., during filling)?	☐ Yes	☐ No	
2. For containers with capacity greater than 0.42 cubic meters, do you meet all of the following requirements:			
• the container is equipped with a submerged fill pipe that does not extend more than 6 inches or within two fill pipe diameters of the bottom of the container while the container is being filled?	☐ Yes	☐ No	
• the cover and all openings are maintained in a closed position (e.g., covered by a lid) when not in use (e.g., during filling)?	☐ Yes	☐ No	
2. Whenever a container with capacity greater than or equal to 0.1 cubic meters is open, is it located within an enclosure that is routed by a closed-vent system to a control device?	☐ Yes	☐ No	
3. Is all control equipment functioning properly (e.g., covers and doors are not cracked, gapped, or broken)?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Do you record the occurrence of each semiannual visual inspection for improper work practices?	☐ Yes	☐ No	
2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?	☐ Yes	☐ No	

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Checklist 3: (cont'd)
Requirements for all containers

B. Recordkeeping and Reporting Requirements			**Comments**
3. For each inspection during which a control equipment failure was identified, do you record and report the following in the next Periodic report:			
• Date of the inspection	☐ Yes	☐ No	
• Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?	☐ Yes	☐ No	
• Description of the failure?	☐ Yes	☐ No	
• Description of the nature of the repair?	☐ Yes	☐ No	
• Date the repair was made?	☐ Yes	☐ No	
4. Do you keep a record of the capacity of each container maintained at your facility if applicable?	☐ Yes	☐ No	

Checklist 4: Requirements for all individual drain systems

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

1. Monitoring and Inspection Requirements			**Comments**
1. For individual drain systems with control equipment including a cover with or without a closed-vent system routed to a control device or to a process, do you meet **all** of the following requirements:			
• the individual drain system is designed and operated to segregate the vapors within the system from other drain systems and the atmosphere?	☐ Yes	☐ No	
• the cover and all openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed position when not in use (e.g., during sampling, equipment maintenance, inspection, or repair)?	☐ Yes	☐ No	
• the cover and all openings are maintained in good condition?	☐ Yes	☐ No	
5. Do you meet **all** of the following requirements for drains:			
• each drain is equipped with either water seal controls (e.g., p-trap, s-trap) or a tightly-fitting cap or plug?	☐ Yes	☐ No	
• for each drain equipped with a water seal, there is water in the water seal?	☐ Yes	☐ No	
• if a water seal is used on a drain receiving a Group 1 process wastewater stream, then do you meet one of the following requirements:	☐ Yes	☐ No	
▸ the drain pipe discharging the wastewater extends below the liquid surface in the water seal; or	☐ Yes	☐ No	
▸ a flexible shield (or other enclosure which restricts wind motion) is installed that encloses the space between the pipe discharging the wastewater and the drain receiving the wastewater?	☐ Yes	☐ No	

Checklist 4: (cont'd)
Requirements for all individual drain systems

1. Monitoring and Inspection Requirements			**Comments**
3. Do you keep junction boxes equipped with tightly fitting solid covers, and, if vented, equipped with a vent pipe meeting all of the following requirements if applicable:			
• the vent pipe is connected to a closed vent system that is routed to a process or control device?	☐ Yes	☐ No	
• if the junction box is filled and emptied by gravity flow or is operated with no more than slight fluctuations in the liquid level and you vent the junction box to the atmosphere, do you meet all of the following requirements:	☐ Yes	☐ No	
▸ the vent pipe is at least 90 centimeters in length?	☐ Yes	☐ No	
▸ the vent pipe does not exceed 10.2 centimeters in diameter?	☐ Yes	☐ No	
▸ a water seal is installed at the entrance or exit of the junction box that restricts ventilation in the individual drain system and between components in the individual drain system?	☐ Yes	☐ No	
4. Do you meet **all** of the following requirements for sewer lines if applicable:			
• sewer lines covered or enclosed so that no visible gaps or cracks in joints, seals, or other emission interfaces exist?	☐ Yes	☐ No	
• sewer lines are not open to the atmosphere?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Do you record the occurrence of each semiannual visual inspection for improper work practices?	☐ Yes	☐ No	
2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?	☐ Yes	☐ No	
3. For each inspection during which a control equipment failure was identified, do you record and report the following in the next Periodic Report:			
• Date of the inspection	☐ Yes	☐ No	
• Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?	☐ Yes	☐ No	
• Description of the failure?	☐ Yes	☐ No	
• Description of the nature of the repair?	☐ Yes	☐ No	
• Date the repair was made?	☐ Yes	☐ No	

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Checklist 4: (cont'd)
Requirements for all individual drain systems

B. Recordkeeping and Reporting Requirements			Comments
4. If you use a drain, junction box, or sewer line as an alternative, do you keep **all** of the following records:			
• documentation of the occurrence of each semiannual inspection of drains to ensure that caps or plugs are in place and properly installed; or	☐ Yes	☐ No	
• documentation of the occurrence of each semiannual verification of water supply to the drain?	☐ Yes	☐ No	
• documentation of the occurrence of each semiannual inspection of junction boxes to ensure that there are no gaps, cracks, or other holes in the cover?	☐ Yes	☐ No	
• documentation of the occurrence of each semiannual inspection of the unburied portion of each sewer line to ensure that there are no cracks or gaps that could result in air emissions?	☐ Yes	☐ No	

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Checklist 5: Requirements for all oil-water separators

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

1. Monitoring and Inspection Requirements			**Comments**
1. Is the floating roof is resting on the liquid surface of the stored material, unless the floating roof is resting on the roof leg supports because the oil-water separator has just been emptied and degassed or the tank is partially or completely emptied before being subsequently refilled or degassed?	☐ Yes	☐ No	
2. Is the floating roof is in good condition (*i.e.*, free of defects such as corrosion and pools of standing liquid)?	☐ Yes	☐ No	
3. Is a secondary seal installed above the primary seal?	☐ Yes	☐ No	
4. If a secondary seal is installed, do you inspect the secondary seal according to **all** of the following requirements:			
• the secondary seal is continuous and completely covers the annular space between the floating roof and the separator wall?	☐ Yes	☐ No	
• there are no holes, tears, or other openings in the seal or seal fabric?	☐ Yes	☐ No	
• the seal is not detached from the floating deck?	☐ Yes	☐ No	
• there are no visible gaps between the seal and the wall of the oil-water separator except as specified below?	☐ Yes	☐ No	
• perform seal gap measurement of the secondary seal according to the following requirements:	☐ Yes	☐ No	
▸ the total gap area between the separator wall and the secondary seal does not exceed 6.7 square centimeters per meter of the separator wall perimeter?			
▸ the maximum gap width between the separator wall and the seal does not exceed 1.3 centimeters at any point?			

Checklist 5: (cont'd)
Requirements for all oil-water separators

1. Monitoring and Inspection Requirements			**Comments**
5. Do you inspect the primary seal according to the following requirements:			
• the primary seal is a liquid-mounted seal?	☐ Yes	☐ No	
• there are no holes, tears, or other openings in the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used)?	☐ Yes	☐ No	
• if the primary seal is a liquid-mounted seal (e.g., foam or liquid-filled seal), the seal is in contact with the liquid between the wall of the oil-water separator and the floating roof?	☐ Yes	☐ No	
• the seal is not detached from the floating roof?	☐ Yes	☐ No	
• the primary seal forms a continuous closure that completely covers the annular space between the wall of the oil-water separator and the edge of the floating roof, except as described below?	☐ Yes	☐ No	
• perform seal gap measurements of the primary seal according to the following requirements:	☐ Yes	☐ No	
▸ the total gap area between the separator wall and the secondary seal does not exceed 67 square centimeters per meter of the separator wall perimeter?			
▸ the maximum gap width between the separator wall and the seal does not exceed 3.8 centimeters at any point?			
6. If the floating roof is equipped with one or more emergency roof drains for removal of stormwater, is each emergency roof drain fitted with a slotted membrane fabric cover that covers at least 90 percent of the drain opening area or a flexible fabric sleeve seal?	☐ Yes	☐ No	
7. Are all openings in the floating roof equipped with a gasketed cover, seal, or lid, which is maintained in a closed position at all times, except during inspections and maintenance?	☐ Yes	☐ No	
8. Are no gaskets, joints, lids, covers, or doors cracked, gapped, or broken?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Do you record the occurrence of each semiannual visual inspection for improper work practices?	☐ Yes	☐ No	
2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?	☐ Yes	☐ No	

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Checklist 5: (cont'd)
Requirements for all oil-water separators

B. Recordkeeping and Reporting Requirements			Comments
3. For each inspection during which a control equipment failure was identified, do you record and report the following in the next Periodic report:			
• Date of the inspection	☐ Yes	☐ No	
• Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?	☐ Yes	☐ No	
• Description of the failure?	☐ Yes	☐ No	
• Description of the nature of the repair?	☐ Yes	☐ No	
• Date the repair was made?	☐ Yes	☐ No	

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Checklist 6: Requirements for design steam strippers

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring and Inspection Requirements			**Comments**
1. Is the minimum active column height at least 5 meters?	☐ Yes	☐ No	
2. Does the countercurrent flow configuration have a minimum of 10 actual trays?	☐ Yes	☐ No	
3. Is the minimum steam flow rate 0.04 kilograms of steam per liter of wastewater feed?	☐ Yes	☐ No	
4. Is the minimum wastewater feed temperature tot he steam stripper 95 degrees Celsius?	☐ Yes	☐ No	
5. Is the maximum liquid loading 67,100 liters per hour per square meter?	☐ Yes	☐ No	
6. Does the design steam stripper operate at nominal atmospheric pressure?	☐ Yes	☐ No	
B. Recordkeeping and Reporting Requirements			**Comments**
1. Do you keep records of the steam flow rate, wastewater feed mass flow rate, and wastewater feed temperature?	☐ Yes	☐ No	
2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?	☐ Yes	☐ No	
3. For each inspection during which a control equipment failure was identified, do you record and report the following in the Periodic report:			
• Date of the inspection	☐ Yes	☐ No	
• Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?	☐ Yes	☐ No	
• Description of the failure?	☐ Yes	☐ No	
• Description of the nature of the repair?	☐ Yes	☐ No	
• Date the repair was made?	☐ Yes	☐ No	

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What equipment leaks are covered?

Subpart MMM regulates equipment leaks from equipment in "organic HAP service." The equipment leak provisions apply to **all** of the following types of equipment [§63.1363(a)(1)]:

- pumps
- compressors
- agitators
- pressure relief devices
- sampling connection systems
- open-ended valves or lines
- valves
- connectors
- instrumentation systems

Definition: *"In organic HAP service"* means that the equipment component either contains or contacts a fluid that's at least 5 percent HAP by weight.

If you have equipment subject to both Subpart MMM and other air regulations under 40 CFR parts 60 or 61, you're only required to comply with Subpart MMM [§63.1362(a)(2)].

Equipment leak provisions apply at **all** times **except** when the lines of a non-operating PAI process unit are drained and depressurized [§63.1360(e)(2)].

How do I identify equipment subject to the equipment leak provisions?

You must identify each piece of equipment covered by the equipment leak provisions so it can be distinguished from equipment not subject to the provisions. You do not have to physically tag the equipment unless you wish to do so. Instead, you can mark the equipment on a plant site plan, in log entries, or by designating process boundaries with waterproof identification.[§63.1363(a)(7)]

Note: If you make changes to the process or equipment subject to the leak detection requirements, you must update the equipment identification, if needed, within 15 calendar days of the end of each monitoring period for that component.

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Leaks are detected by sight, sound, odor, or monitoring. When a leak is detected, you must attach a visible, weatherproof identification to the leaking equipment. The identification may be removed under **either** of the following circumstances:

- after the leak has been repaired if the equipment is not a valve or connector in light liquid or gas/vapor service
- when no leak is detected by follow-up monitoring on a valve or connector in light liquid or gas/vapor service [§63.1363(a)(10)]

Follow-up monitoring is described in §63.1363 (e)(7)(iii) of subpart MMM for valves and §63.174(e) of subpart H for connectors.

What equipment is exempt?

All of the following are **exempt** from the equipment leak provisions [§63.1363(a)(5) through (9)]:

- lines and equipment that don't contain process fluids
- utilities and other nonprocess lines that don't combine their materials with process fluids they serve
- bench-scale processes
- equipment in vacuum service
- equipment in organic HAP service less than 300 hours per year

What compliance options do I have for my equipment leaks?

For equipment in organic HAP service, you have the following **two** compliance options:

Option 1: Use a leak detection/repair program [§63.1363(b), (c), (d), and (e); and sections of Subpart H referenced from §63.1363(b)]

Implement a leak detection and repair (LDAR) program.

Option 2: Use enclosed equipment [§63.1363(b)(3)(ii), §63.172, and §63.179]

Enclose the equipment and transport emissions through a closed vent system to a control device.

Option 3: Use pressure testing [§63.1363(b)(3)(iv), §63.178]

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The requirements and exceptions for all of the options as applied to different types of equipment are summarized in **Table 6-1** (page x). Additional details are also provided later in this chapter.

How do I implement a leak detection and repair (LDAR) program under Option 1?

Your requirements under an LDAR program depend on what type of equipment you're using. The LDAR program is broken down into the following **eleven** categories:

- pumps in light liquid service
- agitators in gas/vapor service and light liquid service

Definition. *In gas/vapor service* means that a piece of equipment in organic HAP service contains a gas or vapor at operating conditions.

Definition. *In light liquid service* means that a piece of equipment in organic HAP service contains a liquid that meets **all** of the following conditions:

(1) The vapor pressure of one or more of the organic compounds is greater than 0.3 kPa at 20°C;

(2) The total concentration of the pure organic compounds constituents having a vapor pressure greater than 0.3 kPa at 20°C is equal to or greater than 20 percent by weight of the total process stream; and

(3) The fluid is a liquid at operating conditions.

- open-ended valves or lines
- valves in gas/vapor or light liquid service
- compressors
- pressure relief devices in gas/vapor service
- sampling collection systems
- pump, valves, connectors and agitators in heavy liquid service

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Definition. *In heavy liquid service* means that the piece of equipment in organic HAP service isn't in gas/vapor or light liquid service.

- instrumentation systems
- pressure relief devices in liquid service
- connectors in gas/vapor service and in light liquid service

Note: Equipment in gas/vapor and light liquid service are subject to different requirements than equipment in heavy liquid service.

For **most** equipment, you implement an LDAR program by monitoring using Method 21 in accordance with **one or both** of the following procedures:

- the procedures specified in §63.1363(b)(3)(v) and §63.180 of the HON
- by visual or other sensory means of detection

For **other** equipment, your LDAR program consists of work practice procedures or equipment design requirements.

Additional details of LDAR programs for each of the eleven categories of equipment are provided later in this chapter.

TABLE 6-1. General Requirements and Exceptions of the **Equipment Leak Provisions**

For the following equipment...	Your equipment leak requirements are...	Except for...	According to this section of the rule...
Pumps in light liquid service and **agitators** in gas/vapor service and in light liquid service (Option 1)	• quarterly monitoring for leaks • monthly monitoring based on calculation of percent leaking pumps • weekly visual inspections • repair of leaks	• unsafe to monitor or inaccessible equipment • pumps/agitators with dual mechanical seal system with barrier fluid • pumps/agitators with no externally actuated shaft • pumps/agitators with closed-vent systems and control devices • pumps/agitators at unmanned sites	§63.1363(c)
Open-ended valves or lines (Option 1)	seal valves or lines with a cap, blind flange, plug, or a second valve	• valves/lines designed to open automatically in emergency • valves/lines containing materials which would autocatalytically polymerize • valves/lines that would be hazardous if capped or equipped with a double block and bleed system	§63.1363(d)
Valves in gas/vapor service and light liquid service (Option 1)	• initial monitoring for leaks • repeat monitoring based on calculation of percent leaking valves • repair of leaks	• unsafe and difficult to monitor valves • inaccessible valves	§63.1363(e)
Compressors (Option 1)	• equip compressors with a seal system that includes barrier fluid system • repair of leaks	• compressors with closed-vent systems and control devices • compressors with leak detection instrument reading of <500 ppm	§63.164
Pressure relief devices in gas/vapor service (Option 1)	leak detection instrument reading of <500 ppm (except during pressure releases)	• pressure relief devices with closed-vent systems and control devices • pressure relief devices with upstream rupture disks	§63.165

TABLE 6-1. (cont'd)

For the following equipment...	Your equipment leak requirements are...	Except for...	According to this section of the rule...
Sampling connection systems (Option 1)	a closed-purge, closed-loop, or closed-vent system	in-situ sampling systems and sampling systems without purge	§63.166
Pumps, valves, connectors, and **agitators** in heavy liquid service; **instrumentation systems**; and **pressure relief devices** in liquid service (Option 1)	• monitoring of equipment with potential leaks • repair of leaks	potential leaks that are repaired before monitoring	§63.169
Connectors in gas/vapor service and in light liquid service (Option 1)	• initial monitoring for leaks • repeat monitoring based on calculation of percent leaking connectors • repair of leaks	• connectors that have been opened or have a broken seal • screwed connectors with a small inside diameter • ceramic or ceramic-lined connectors • unsafe and difficult to monitor connectors • inaccessible connectors • credits for removed connectors	§63.174 with changes described in §63.1363(b)(3)(iii)
Closed-vent systems and **control devices** (Option 2)	• percent reduction, outlet concentration, or equipment operating requirements • monitoring for use of bypass lines • inspections • repair of leaks	control devices subject to monitoring, reporting, and recordkeeping requirements in 40 CFR part 264, subpart BB, or in 40 CFR part 265, subpart BB	§63.172 with changes described in §63.1363(b)(3)(ii)

What are the LDAR requirements for Pumps in Light Liquid Service and Agitators in Gas/Vapor Service and Light Liquid Service (Option 1)?

Requirements for pumps and agitators under Option 1 include **all** of the following [§63.1363(c)]:

- monitor equipment for leaks using Method 21
- perform visual inspections
- repair leaks

In addition, there are exemptions to these requirements for specific types of equipment. All requirements and exemptions are detailed below.

Monitoring for leaks:

You must monitor for leaks each **quarter** using the monitoring method described in §63.180(b) of subpart H [§63.1363(c)(2)(i)]. This method requires you to use a leak detection instrument. Your equipment is considered leaking if you get **any** of the following instrument readings: [§63.1363(c)(2)(ii)]

- ≥10,000 ppm for agitators
- ≥2,000 ppm for pumps

You must calculate the percentage of pumps that leak using the procedure outlined in §63.1363(c)(4). This percentage is based on the groups of processes that you develop before the first monitoring period. You must monitor each pump monthly if (based on a 1-year rolling average) **any** of the following apply:

- 10 percent or more of the pumps in a group of processes leak
- three or more pumps in a group of processes leak

All pumps in organic HAP service, except those in compliance under option 2, must be included in the percent leaking calculation

However, you **don't** have to determine the **percent leaking pumps** for a process if more than 90 percent of the pumps in a group of processes are **either** of the following: [§63.1363(c)(9)]

- equipped with a dual mechanical seal system that includes a barrier fluid system
- designed with no externally actuated shaft penetrating the pump/agitator housing

Note. You do not have to calculate the percentage of agitators that are leaking.

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Visual inspections:

Each pump and agitator must be checked weekly by visual inspection for signs of liquids dripping from the pump or agitator seal. A leak is detected if you notice signs of liquids dripping from the seal. [§63.1363(c)(2)(iii)]

Repair of leaks:

You must repair leaks as soon as possible after they are detected. See "What are the leak repair requirements?" for more information.

Exceptions:

There are several exemptions to the requirements for implementing an LDAR for Pumps in Light Liquid Service and Agitators in Gas/Vapor Service and Light Liquid Service. Exemptions include **all** of the following:

Pumps that are unsafe or difficult to monitor -

- You aren't required to monitor equipment that's **unsafe or difficult to monitor** or is inaccessible. See "What if equipment is unsafe or difficult to monitor?" for more information.

Pumps or agitators with special design features -

- **Pumps** or **agitators** equipped with a dual mechanical seal system that includes a barrier fluid system are exempt from the monitoring, visual inspection, and repair provisions in §63.1363(c)(2) and (3) provided that **all** of the following are performed: [§63.1363(c)(5)]
  - your **dual mechanical seals** meet be **one** of the following criteria:
    - are operated with a barrier fluid pressure that is always greater than the pump/agitator stuffing box pressure
    - are equipped with a barrier fluid degassing reservoir connected by a closed-vent system to a control device
    - are equipped with a closed-loop system that purges the barrier fluid into a process stream
  - the **barrier fluid** isn't in light liquid service
  - each **barrier fluid system** has a sensor that will detect failure of the seal system, the barrier fluid system, or both. The sensor must be observed daily or have an alarm (unless the pump is at an unmanned plant site).

- each **pump/agitator** must be visually inspected each week to see if liquids are dripping from the pump/agitator seal. If liquids are dripping, the seal must be monitored with a leak detection instrument to determine if there's a leak of organic HAP in the barrier fluid. A leak is detected if the instrument reads ≥10,000 ppm for agitators or ≥2,000 ppm for pumps.
- you've determined the criteria that you'll use to indicate **failure of the seal** system, the barrier fluid system, or both. If a leak is detected based on your criteria then you must repair the leak as described in "What are the leak repair requirements?" of Chapter 6.

- Any **pump or agitator** designed with no externally actuated shaft penetrating the pump/agitator housing is exempt from the monitoring and repair provisions. However, the **weekly** visual inspection requirements apply for these pumps/agitators. [§63.1363(c)(6)]
- **Pumps and agitators** in compliance under option 2 are exempt from the monitoring, visual inspection, repair, and calculation of percent leaking pumps provisions. [§63.1363(c)(7)]
- **Pumps and agitators** at unmanned plant sites are exempt from weekly visual inspections and daily sensor observations (for pumps/agitators with dual mechanical seal and barrier fluid systems). However, each pump/agitator must be visually inspected at least **monthly** or more frequently if possible. [§63.1363(c)(8)]

What are the LDAR requirements for open-ended valves or lines (Option 1)?

You comply with the LDAR requirements for open-ended valves or lines under Option 1 by sealing the open end using **any** of the following devices: [§63.1363(d)(1)(i)]

- a cap
- a blind flange
- a plug
- a second valve

The mechanism you use to seal the open end must meet **both** of the following: [§63.1363(d)(1)(ii)]

- it must be in use at **all** times except:
  - during operations requiring process fluid flow through the valve or line
  - during maintenance
  - during repair
- it must be in place within 1 hour after any of the excepted periods listed above

Note: If you use a second valve, you must close the valve on the process fluid end before closing the second valve [§63.1363(d)(2)].

If you use a double block and bleed system, you may leave the bleed valve or line open during operations that require venting the line between the block valves.

Exemptions:.

You **don't** have to comply with the requirements to seal the open-ended valve or line if **any** of the following situations apply to the open-ended valve or line: [§63.1363(d)(4) through (6)]

- it contains material which would autocatalytically polymerize
- it contains material which could cause a safety hazard if capped or equipped with a double block and bleed system
- it's designed to open automatically as part of an emergency shutdown system in the event of a process upset

What LDAR requirements apply to valves in gas/vapor or light liquid service (Option 1)?

For valves in gas/vapor or light liquid service you must implement an LDAR program by doing of **all** of the following steps:

Step 1: Identify your valves:

- identify all valves in PAI process units [§63.1363(a)(7)]

Step 2: Identify valves subject to special monitoring requirements:

- identify each valve that meets **one** of the following conditions: [§63.1363(f)]
  - is unsafe to monitor
  - is difficult to monitor
  - is inaccessible

For more information, see "What are the LDAR requirements for unsafe to monitor, difficult to monitor, and inaccessible equipment?"

Step 3: Perform initial monitoring:

- monitor all valves (except those identified in Step 2) within 1 year after the compliance date (e.g., by 6/23/03). [§63.1363(e)(2) and (e)(3)(i)]

Step 4: Repair all leaks

- if you find a leaky valve, do **all** three of the following:

Note: A leak exists if the instrument reading is 500 ppm or greater [§63.1363(e)(3)(ii)].

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- repair the leaking valve no later than 15 calendar days after you identify the leak [§63.1363(e)(7)(i)]
- attempt to repair the leaking valve no later than 5 calendar days after detecting the leak [§63.1363(e)(7)(ii)]. Examples of first attempts at repair include **all** of the following: [§63.1363(e)(8)]
  - tightening of bonnet bolts
  - replacement of bonnet bolts
  - tightening of packing gland nuts
  - injection of lubricant into lubricated packing

  You may delay repair under certain situations [§63.1363(b)(3)(i) and §63.171]. For more information, see "When may I delay repair?"
- re-monitor the valve within 3 months of repair, but you don't need to include these monitoring results in the calculation of percent leakers described in Step 5 [§63.1363(e)(7)(iii) and (e)(6)(ii)]

Step 5: Calculate your percentage of leaking valves

- calculate the percentage of leaking valves in a group of valves, excluding nonrepairables [§63.1363(e)(6)(ii)]. You may define groups that are most appropriate for your site-specific circumstances. Your choices for groups consist of **any** combination of the following: [§63.1363(b) and (e)(6)(i)]

  The results of these calculations are used to determine the frequency of subsequent monitoring, as described in Step 6.
  - create group of all the valves from a single process
  - create a group of all the valves from multiple processes
  - create multiple subgroups of all the valves from multiple processes

Note: You may not create subgroups of valves from a single process. Procedures for subgroups are described on page x. To create or revise groups or subgroups after the implementation date, you must revise your permit [§63.1363(e)(6)(i)].

To calculate the percentage of leaking valves in a group or subgroup, you may exclude **nonrepairable** valves (up to 1 percent of the total number of valves in the group or subgroup) [§63.1363(e)(6)(iv)].

Step 6: Continuous monitoring for leaks

- After your initial round of monitoring, you must monitor for leaks as follows:

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If the total number of valves you have for all groups is...	And the percentage of leaking valves in the group or subgroup is[a]...	Then you must monitor at least once every[b]...	According to §63.1363(e)(6)(iii) and this section of the rule...
≥250	≥2 percent	month	§63.1363(e)(4)(i)
	<2 percent	3 months	§63.1363(e)(4)(ii)
	<1 percent	6 months	§63.1363(e)(4)(iii)
	<0.5 percent	12 months	§63.1363(e)(4)(iv)
	<0.25 percent	2 years	§63.1363(e)(4)(v)
<250	no determination required	3 months	§63.1363(e)(9)
	<1 percent	6 months	§63.1363(e)(4)(iii), (e)(4)(iv), and (e)(9)
	<0.5 percent	12 months	

[a] Percentages are averaged from the data collected during the previous two monitoring periods if the group or subgroup was monitored every year or every 2 years, and percentages are averaged from the previous three monitoring periods if the group or subgroup was monitored every 1 month, 3 months, or 6 months.

[b] All valves that you find to be leaking must be repaired and remonitored

Your requirements for **subgrouping** valves include **all** of the following:

- you may subgroup valves within a group of processes if less than 2 percent of the valves in the group leaked in the last monitoring period [§63.1363(e)((5)(i)]
- you must check for compliance with the 2 percent cutoff for the group every 6 months [§63.1363(e)((5)(iii)]
- anytime you find more than 2 percent in the group to be leaking, you must revert to monitoring the group as a whole (i.e., monitor all of the valves in the group monthly) [§63.1363(e)(5)(iii)]
- when you create subgroups, you must include in the most frequently monitored subgroup all valves that meet **either** of the following conditions [§63.1363(e)(5)(ii)(A)]:
  - those with less than 1 year of monitoring data
  - those that haven't been monitored in the last 12 months
- you may move any valve from a less frequently monitored subgroup to a more frequently monitored subgroup if you take **all** of the following actions before and after the move [§63.1363(e)(5)(ii)(B)]:
  - **before the move**: monitor the valve during the most recent monitoring period for the less frequently monitored subgroup
  - **after the move**: include the first monitoring results in your next calculation of the percentage leaking valves for the less frequently monitored subgroup (as well as in the calculation for the more frequently monitored subgroup)

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- you may move a valve from a more frequently monitored subgroup to a less frequently monitored subgroup if the valve has not leaked for the period of the less frequently monitored subgroup [§63.1363(e)(5)(ii)(C)]

Nonrepairable valves may not be moved to a less frequently monitored subgroup.

Note: You must conduct more recordkeeping and reporting for subgroups than for groups of processes [§63.1363(e)(5)(iv), (v), and (vi)]. See _____ for more information.

What LDAR requirements apply to compressors (Option 1)?

To comply with the LDAR requirements for compressors (option 1), you must do **all** of the following:

- equip your compressors with a **seal system** that includes a **barrier fluid system** and meets any **one** of the following [§63.164(a) and (b)]:
  - it's operated with the barrier fluid pressure greater than the compressor stuffing box pressure
  - it's equipped with a barrier fluid system degassing reservoir that's routed to a process or connected by a closed-vent system to a control device
  - it's equipped with a closed-loop system that purges the barrier fluid directly into a process stream

Note: the barrier fluid must not be in light liquid service.

- equip the barrier fluid system with a **sensor** that will detect a system failure [§63.164(d)]
- **determine a criterion** for the sensor that indicates the failure [§63.164(e)(2)]
- **observe the sensor** daily or equip it with an alarm (this requirement does not apply if the compressor is located at an unmanned plant site)[§63.164(e)(1)]

Note: you have a leak if the sensor detects a failure [§63.164(f)]

- **repair leaks** within the following timeframe [§63.164(g)]:
  - your first attempt at repair must occur within 5 working days after you detect a leak
  - you must complete the repair within 15 calendar days after you detect a leak, unless a delay of repair is allowed

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Exceptions:

The LDAR requirements **don't** apply to compressors in organic HAP service if you do **any** of the following:

- equip the compressor with a closed vent system to capture and transport leaks back to a process or to a control device [§63.164(h)]
- designate that the compressor operates with an instrument reading of less than 500 ppm above background based on monitoring using Method 21 at all of the following times [§63.164(i)]:
  - when you make the designation
  - annually
  - any other time requested by the Administrator

What LDAR requirements apply for pressure relief devices in gas/vapor service (Option 1)?

To comply with the LDAR requirements for pressure relief devices in gas/vapor service (option 1), you check your devices for leaks after each pressure release. Your pressure relief devices must have a leak detection instrument reading of less than 500 ppm above background, except during pressure releases.

Section 63.180(c) of subpart H specifies how to measure for leaks [§63.165(a)]. After each pressure release [§63.165(b)]:

- the pressure relief device must be returned to less than 500 ppm as soon as possible
- you must monitor the relief device within 5 days of the pressure release and return of the relief device to organic HAP service to ensure an instrument reading of less than 500 ppm

Exceptions:

You are exempt from the LDAR requirements for pressure relief devices in gas/vapor service if **either** of the following apply:

- you comply with Option 2 [§63.165(c)].
- if your pressure relief device is equipped with a rupture disk upstream of the pressure relief device, and you replace the rupture disk as soon as possible (but no more than 5 days) after a pressure release [§63.165(d)].

What LDAR requirements apply for sampling connection systems? (Option 1)

To comply with the LDAR requirements for sampling connection systems (option 1), you must meet certain design requirements. Your sampling connection systems must have a closed-purge, closed-loop, or closed-vent system. You aren't required to capture gases displaced during filling of sample containers[§63.166(a)]. Closed-purge, closed-loop, or closed-vent systems must do **one** of the following: [§63.166(b)]:

- return purged process fluid directly to the process line
- collect and recycle purged process fluid to a process
- capture and transport purged process fluid to a control device
- collect, store, and transport purged process fluid to a waste management unit, TSDF, or permitted waste management facility

Exceptions:

In-situ sampling systems and sampling systems without purges are exempt from the LDAR requirements for sampling connection systems.

What LDAR requirements apply for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service? (Option 1)

To comply with the LDAR requirements for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service under Option 1 you must do **all** of the following [§§63.1363(b)(2) and 63.169]:

- monitor equipment for leaks
- repair leaks

In addition, there are exemptions to these requirements for specific types of equipment. All requirements and exemptions are detailed below.

Monitoring for leaks:

If you see, hear, notice an odor, or otherwise detect a potential leak, then you must monitor for leaks within 5 days using the method described in §63.180(b). This method requires use of a leak detection instrument to monitor the potential leak. The following table summarizes what is considered to be a leak:

A leak is detected for ...	If the instrument reading is ...
agitators	10,000 ppm
pumps handling polymerizing monomers	5,000 ppm
pumps in food or medical service	2,000 ppm
valves	500 ppm
connectors	500 ppm
instrumentation systems	500 ppm
pressure relief devices	500 ppm

Repair of leaks:

You must repair leaks as soon as possible after they are detected. See "What are the leak repair requirements?" for additional details.

Exceptions:

You are not required to monitor for leaks if you repair potential leaks. Repair of potential leaks means any of the following:

- you can no longer see, hear, smell, or otherwise detect the potential leak
- you see no bubbles at potential leak sites during a leak check with soap solution
- the system will hold a test pressure

What LDAR requirements apply for connectors in gas/vapor or light liquid service (Option 1)?

To comply with the LDAR requirements for connectors (option 1), you must do **all** of the following:

Step 1: Identify your connector

- identify all connectors in PAI process units [§63.1363(a)(7)]

Step 2: Identify connectors subject to special monitoring requirements

- identify each connector that meets **one** of the following conditions [§63.1363(f) and §63.174(f), (g), and (h)]:
  - unsafe to monitor
  - difficult to monitor
  - inaccessible

For more information, see "What are the LDAR requirements for unsafe to monitor, difficult to monitor, and inaccessible equipment?"

Step 3: Perform initial monitoring

- Monitor all connectors (except those designated in Step 2) [§63.174(b)]:
  - by June 23, 2003 for existing sources
  - within 12 months after initial startup or by June 23, 2003, whichever is later, for new sources

Step 4: Repair the leak

- Repair leaks within the following timeframe [§63.174(d)]:
  - you must complete the repair no later than 15 calendar days after you identify a leak, unless a delay of repair is allowed.
  - your first attempt at repair must be no later than 5 calendar days after you detect the leak

Step 5: Calculate your percentage of leaky connectors

- Calculate the percentage of leaking connectors in a group of processes using the procedures specified in §63.174(i)

Step 6: Continuous monitoring for leaks

- After the first year of monitoring, determine your required monitoring frequency as follows:

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If, during the last monitoring period, the percentage of connectors that leak is...	Then your required monitoring frequency for the next period must be no less than...	And you must monitor...	However, if the percentage leaking is...	Then you must increase the monitoring frequency for the group to[a]...	According to this section of the rule...
≥0.5 percent	once per year	all connectors during the year			§63.1363(b)(3)(iii) and §63.174(b)(3)(i)
≥0.25 percent to <0.5 percent	once every 4 years	40 percent in the first 2 years	≥0.5 and <1.0 percent in the first 2-year period or the full 4-year period	once every 2 years	§63.1363(b)(3)(iii)(C) and (D)
			≥1.0 percent in the first 2-year period	once per year	§63.1363(b)(3)(iii)(E)
<0.25 percent	once every 8 years	50 percent in the first 4 years	≥0.35 and <0.5 percent in the first 4-year period	once every 4 years (with 40 percent monitored in the first 2 years)[b]	§63.1363(b)(3)(iii)(C) and (F)
			≥0.5 and <1.0 percent in the first 4-year period	once every 2 years	§63.1363(b)(3)(iii)(D) and (F)
			≥1.0 percent in the first 4-year period	once per year	§63.1363(b)(3)(iii)(E) and (F)

[a] You may return to the 4-year and 8-year monitoring frequencies if less than 0.5 percent and 0.25 percent, respectively, are leaking in this monitoring period [§63.1363(b)(3)(iii)(D) and (E)]. However, except as specified in footnote b, if ≥0.5 percent are leaking, you must monitor once per year [§63.174(b)(3)(i)].

[b] If ≥0.5 percent and less than 1.0 percent are leaking in the full 4-year period, your next monitoring period must be 2 years [§63.1363(b)(3)(iii)(C)].

Exceptions to the above LDAR requirements for connectors apply for the following connectors:

Monitoring connectors that have been opened:

You have **two** options for monitoring of **connectors that have been opened or have a broken seal** [§63.174(c)]:

- Monitor the connector for leaks when it is reconnected or within the first 3 months after it is returned to organic HAP service. If a leak is detected, it must be repaired (unless it is determined to be nonrepairable).

- Choose not to monitor the connector. If you choose not to monitor the connector, then you cannot count nonrepairables in your calculation of the percentage that are leaking.

Note: You may switch between the two monitoring alternatives for connectors that have been opened or have a broken seal, provided the switch is at the end of the current monitoring period, and that it's reported. You must complete initial monitoring in the new alternative no later than 12 months after you report the switch.

Monitoring for screwed connectors:

For **screwed connectors** with an inside diameter of 2 inches or less installed before November 10, 1997, you may do **all** of of the following as an alternative to the procedure described above [§63.174(c)(2)]:

- Comply with the requirements for connectors in heavy liquid service in §63.169 of the HON (i.e., if you detect evidence of a leak by visual, audible, olfactory, or other means, then either repair the connector or monitor to determine if repair is needed).
- Monitor for leaks within the first 3 months after the screwed connector is returned to organic HAP service after having been opened or having the seal broken. Leaks must be repaired as described in "What are the leak repair requirements?"

Monitoring for connectors you eliminate:

If you eliminate a connector subject to repeat monitoring, you may take **credit for elimination of the connector** if **all** of the following requirements are met [§63.174(j)]:

- The connector was welded after November 10, 1997
- The integrity of the weld is demonstrated by monitoring, X-ray testing, acoustic monitoring, hydrotesting, or other method
- Welds created after November 10, 1997 but before June 23, 1999 are monitored or tested by 3 months after the compliance date
- Welds created after June 23, 1999 are monitored or tested within 3 months after being welded
- If an inadequate weld is found or the connector is not welded completely around the circumference, the connector is not exempt from the monitoring requirements

What are my compliance requirements for closed-vent systems and control devices (Option 2)?

Requirements for closed vent systems and control devices under Option 2 include **all** of the following [§§63.1363(b)(3)(ii), 63.172, and 63.179]:

- operating requirements
- inspections

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- monitoring of bypass lines

In addition, there are exemptions to these requirements for specific types of equipment. All requirements and exemptions are detailed below.

Operating requirements:

Closed-vent systems or control devices must be operating whenever organic HAP emissions are being vented [§63.172(m)]. The table below summarizes the standards for closed-vent systems and control devices:

If you operate a...	Then meet...	Or meet...	Or meet...
Recovery or recapture device (e.g., condenser, absorber, etc.)	≥95 percent reduction	20 ppmv*	
Enclosed combustion device	≥95 percent reduction	20 ppmv (dry basis, 3 percent O_2)	minimum residence time of 0.5 sec. At 1400°F (760°C)
Flare	the requirements of §63.11(b)		

*The 20 ppmv standard is not applicable if you meet the alternative standards for enclosed-vent process units.

Inspections:

If the closed-vent system is made of hard-piping you must perform an initial inspection and annual visual inspections for visible, audible, or olfactory indications of leaks.

If your vapor collection system or closed-vent system is made of duct work, your must conduct an initial inspection and annual inspections [§63.172(f) and (g)].

§63.180(b) of subpart H specifies how you must conduct initial inspections for hard-piping and duct work and annual inspections for duct work.

Monitoring of bypass lines:

If your closed-vent system has bypass lines that could divert a vent stream away from the control device and to the atmosphere, you must do **one** of the following [§63.172(j)]:

- Use a flow indicator at the entrance of the bypass line. The flow indicator must take a reading at least once every 15 minutes and you must keep records of the readings. Records shall be generated as specified in §63.118(a)(3) of subpart G

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- Secure the bypass line valve in the non-diverting position with a car-seal or a lock-and-key type configuration. You must visually inspect the seal or closure mechanism monthly to ensure the valve is maintained in the non-diverting position

Exceptions:

If your control device is subject to monitoring, recordkeeping, and reporting requirements in 40 CFR part 264, subpart BB, or in 40 CFR part 265, subpart BB, then you may **choose** whether to comply with the monitoring, recordkeeping, and reporting requirements of this rule or the requirements in 40 CFR parts 264 or 265. You must identify which option you choose in your periodic report [§63.172(n)].

Instead of the completing the initial and annual inspections, you may design a **closed-vent system** to operate below atmospheric pressure. The system must be equipped with a pressure measurement device that can be read from a readily accessible location to verify that negative pressure is maintained in the closed-vent system when the control device is operating [§63.1363(b)(3)(ii)(B)].

You aren't required to inspect equipment that is unsafe or difficult to monitor or is inaccessible. (See "What if equipment is unsafe or difficult to monitor?" for additional information).

Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes **aren't** subject to the monitoring requirements for bypass lines [§63.172(j)(3)].

What is required for an alternative standard (Option 3)?

You may apply for permission to use alternative emission limit (e.g., alternative standard) to meet compliance with 3.
An "**Alternative emission limit** " is a way of reducing emissions other than the equipment, design, or operational requirements or work practice standards in Subpart MMM's equipment leak provisions. Some general conditions must be met when you apply for alternative means of emission limitation, these include **all** of the following: [§63.177(b) and (c)]:

- you're responsible for collecting and verifying emission performance test data for an alternative limit
- the Administrator will compare test data or the demonstrated emission reduction for the alternative means of emission limitation to test data or emission reduction for the required PAI equipment leak standards
- if the PAI standard is a work practice, you must commit in writing to work practices that provide the same or better emission reductions than required by Subpart MMM and you must demonstrate the that you're meeting the emission reduction standard for at least a 1-year period.

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- the Administrator may condition the permission on requirements that may be necessary to ensure operation and maintenance to achieve the same or greater emission reduction as the Subpart MMM equipment leak standards

You (or your leak control equipment manufacturer - why just the manufacturer, why not consultants, etc.?) may offer a unique approach to demonstrate the alternative emission limit [§63.177(d) through (e)].

You may do **all** of the following under the alternative standards:

- conduct **pressure testing** for leaks on batch or non-batch equipment [§63.178 with changes described in §63.1363(b)(3)(iv)]
- **monitor** batch equipment for leaks [§63.178 with changes described in §63.1363(b)(3)(iv)]
- **enclosure** of process units so that all emissions from equipment leaks are vented through a closed-vent system to a control device [§63.179]

Pressure testing:

If you comply with the requirements for pressure testing in the section, you're **exempt** from the monitoring provisions for **all** of the following [§63.178(b)]:

- pumps in light liquid service
- valves in gas/vapor service and in light liquid service
- pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service
- agitators in gas/vapor service and in light liquid service
- connectors in gas/vapor service and light liquid service

For non-exempt process equipment, you must pressure test the equipment train for leaks each time the equipment is reconfigured for production of a different product. Pressure testing **isn't** required for routine seal breaks, such as changing hoses or filters. You must pressure test at lest once per year [§63.178(b)(1)].

*Process equipment must be tested using **either** of the procedures specified in:*

- *§63.180(f) for pressure or vacuum loss*
- *§63.180(g) for a test using a liquid*

Leaks are detected if [§63.178(b)(3)]:

For pressure or vacuum tests...	For pressure tests using a liquid...
The pressure changes at a rate greater than 6.9 kilopascals (1 psig) in 1 hour **or** if there's visible, audible, or olfactory evidence of fluid loss	there are indications of liquids dripping **or** if there's other evidence of fluid loss.

If you detect a leak, you must repair it and retest the equipment before start-up of the process. See "What are the leak repair requirements?" **(page x)** for more information.

Monitoring batch equipment for leaks:

If you elect to monitor batch equipment for leaks to show compliance, you must comply with the requirements specified in "How do I comply" [§63.178(c)(1)]. You must monitor the batch equipment for leaks when equipment is in use with **any** of the following [§63.178(c)(2)]:

- organic HAP
- an acceptable surrogate volatile organic compound which is not an organic HAP
- any other detectable gas or vapor

§63.180(b) of subpart H specifies how to monitor for equipment leaks.

Each time the equipment is reconfigured for the production of a new product, you must monitor the equipment for leaks within **30 days** of process start-up. Initial monitoring can't be used in determining percent leaking equipment [§63.178(c)(3)(i)].

Connectors must be monitored in accordance with the requirements in §63.174 of Subpart H [§63.178(c)(3)(ii)].

Batch equipment other than connectors must be monitored at the following frequencies [§63.178(c)(3)(iii)]:

If the equipment is operated ...	And the monitoring frequency required for a continuous process is...		
	monthly	**quarterly**	**semiannually**
	Then you must monitor your batch process...		
0 to <25 percent of the year	quarterly	annually	annually
25 to <50 percent of the year	quarterly	semiannually	annually
50 to <75 percent of the year	bimonthly	three times	semiannually
75 to 100 percent of the year	monthly	quarterly	semiannually

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The monitoring frequencies specified in the table above can be adjusted to accommodate your process operations. You may monitor anytime during the monitoring period (e.g., month, quarter, year), provided the monitoring is conducted within a reasonable time after monitoring was last completed. For example, if the equipment is not operating during the scheduled monitoring period, the monitoring can be done during the next period when the process is operating [§63.178(c)(3)(iv)].

Enclosed-vented process units.

Process units **enclosed** so that all emissions from equipment leaks are vented through a closed-vent system to a control device are **exempt** from Subpart MMM equipment leak requirements.

However, you must maintain the enclosure under a negative pressure at all times while the process unit is in operation to ensure that all emissions are routed to a control device [§63.179].

What are my leak repair requirements?

You must repair leaking equipment as soon as possible after leaks are detected. A first attempt to repair the leak must be made within 5 days after the leak is detected. Activities listed in Subpart MMM as first attempts to repair leaks from certain equipment are summarized as follows:

For the following equipment...	First attempts to repair leaks include...	According to...
pumps/agitators in light liquid service	• tightening of packing gland nuts • ensuring the seal flush is operating at design pressure and temperature	§63.1363(c)(3)
valves in gas/vapor or light liquid service	• tightening of bonnet bolts • replacement of bonnet bolts • tightening of packing gland nuts • injection of lubricant into lubricated packing	§63.1363(e)(8)
pumps, valves, connectors, and **agitators** in heavy liquid service; **instrumentation systems**; and **pressure relief devices** in liquid service	• tightening of the packing gland nuts • ensuring that the seal flush is operating at design pressure and temperature • tightening or replacement of valve bonnet bolts • injection of lubricant into lubricated packing	§63.169(d)

Leaks must be fully repaired within **15 days** after detection. However, you may delay repair of leaking equipment under **any** of the following circumstances [§63.171].

- If the repair is technically infeasible without a process unit shutdown. You may delay repair until the end of the next process unit shutdown [§63.171(a)].

- If equipment is isolated from the process and doesn't remain in organic HAP service [§63.171(b)]

- If emissions of material purged from valves, connectors, or agitators during immediate repair would be greater than the fugitive emissions likely to result from delay of repair. When the repair is performed the purged material must be collected and destroyed or recovered in a control device [§63.171(c)].

- If pump repair requires replacing the existing seal with a new system that will better meet the requirements of Subpart MMM . The repair must be completed as soon as possible but not more than 6 months from the time when the leak was detected [§63.175(d)].

- If valve assembly replacement is necessary during a process unit shutdown, but valve assembly supplies aren't on hand. You may not delay repairs beyond the next process unit shutdown, unless a third shutdown will occur within 6 months from the first process unit shutdown [§63.171(e)].

Valves in gas/vapor or light liquid service must be monitored at least once within the first **3 months** after repairs are made. Days when a valve isn't in organic HAP service aren't included as part of this 3-month period [§63.1363(e)(7)].

<u>Option 2</u>:
You may delay a repair of leaks in **closed-vent systems** and **control devices** only if **either** of the following applies: [§63.172(h)]

- the repair is technically infeasible without a process unit shutdown
- if you determine that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delaying the repair

The repair must be completed by the end of the next process unit shutdown [§63.172(i)].

<u>Option 3</u>:
If you detect a leak when monitoring batch processes under the **alternative standard**, you must repair the leak within no more than **15 days** after it is detected [§63.178(c)(4)]. If you detect a leak during pressure testing under the alternative standard, you must repair the leak and retest the equipment before start-up of the process. If the equipment fails the retest or the second of two consecutive pressure tests, it must be repaired as soon as possible, but no longer than 30 days after the second pressure test.

Delay of leaking equipment repair is allowed under the alternative standard, if the replacement equipment is not available and both of the following conditions are met [§63.178(d)]:

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- Equipment supplies (which were sufficiently stocked) have been depleted
- The repair is made no later than 10 days after delivery of the replacement equipment

What if equipment is unsafe or difficult to monitor?

Rule references for the leak repair provisions are:

§63.1363(c)(3) for pumps in light liquid service and agitators in gas/vapor or light liquid service
§63.1363(e)(7) for valves in gas/vapor or light liquid service
§63.164(g) for compressors
§63.169(c) and (d) for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service
§63.172(h) and (i) for closed-vent systems and control devices
§63.174(d) and (h)(2) and (3) for connectors in gas/vapor of light liquid service
§63.178 for alternative means of emission limitation

If you designate the following equipment as unsafe to monitor, difficult to monitor, or inaccessible, the equipment is **exempt** from the general equipment leak requirements listed in **Table 6-1** in "How do I comply?": [§63.1363(f)]

- **pumps** in light liquid service and **agitators** in gas/vapor service and in light liquid service
- **valves** in gas/vapor service and in light liquid service
- **closed-vent systems** and **control devices**
- **connectors** in gas/vapor service and in light liquid service

Equipment that's unsafe to monitor:

Equipment may be designated as unsafe to monitor if you determine that monitoring personnel would be exposed to an immediate danger if you comply with the equipment leak monitoring requirements. If you designate equipment as unsafe to monitor, then you must have a written plan that requires monitoring of the equipment as frequently as possible during safe-to-monitor times. You do not have to monitor more frequently than the periodic monitoring schedule that would apply of the equipment were not unsafe to monitor [§63.1363(f)(2)].

Equipment that is difficult to monitor:

Equipment may be designated as difficult to monitor if you determine that **either** of the following are true: [§63.1363(f)(3)(i)]

- the equipment can't be monitored without elevating the monitoring personnel more than 2 meters above a support surface
- the equipment isn't accessible at anytime in a safe manner

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If you designate equipment as difficult to monitor, then you must follow a written plan that requires monitoring of the equipment at least once per calendar year [§63.1363(f)(3)(iii)]. Any equipment may be designated as difficult to monitor at an existing source. At a new source, you may designate no more than 3 percent of each type of equipment as difficult to monitor [§63.1363(f)(3)(ii)].

Inaccessible equipment and ceramic or ceramic-lined connectors.

You may designate a connector, agitator, or valve as inaccessible if it's **any** of the following [§63.1363(f)(4)(i)]:

- buried
- insulated in a manner that prevents access to the equipment by a monitor probe
- obstructed by equipment or piping that prevents access to the equipment by a monitor probe
- unable to be reached from a wheeled scissor-lift or hydraulic-type scaffold which would allow access to equipment up to 7.6 meters above the ground
- not able to be accessed at any time in a safe manner to perform monitoring. Examples of unsafe access are:
  - access requiring a wheeled scissor-lift on unstable or uneven terrain
  - access requiring a motorized man-lift basket in areas where an ignition potential exists
  - access near hazards such as electrical lines
  - access that would risk damage to equipment

Ceramic or ceramic-lined connectors may be treated as inaccessible connectors [§63.1363(f)(1)].

At an existing source, you may designate any connector, agitator, or valve as inaccessible if it meets the applicable criteria. At a new source, you may designate no more than **3 percent** of each type of equipment as inaccessible [§63.1363(f)(4)(ii)].

Inaccessible equipment observed by sight, sound, odor, or other means to be leaking must be repaired as soon as possible. See "What are the leak repair requirements?" [§63.1363(f)(4)(iii)].

What records must I keep for my equipment leaks?

You must keep the following types of records depending on the type of equipment you use: [§63.1363(g)]

- general records (identification of equipment, records of exemptions, etc.)
- records of visual inspections

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- monitoring records
- records of pressure tests
- records of compressor and pressure relief valve compliance tests
- records for closed-vent systems
- records for components in heavy liquid service
- records of exempt components
- records of alternative means of compliance determination

You must also keep records pertaining to the division of valves in gas/vapor service and light liquid service into process subgroups. Specific recordkeeping procedures are identified below [Need to convert the info below to a table]

You only need one recordkeeping system, even you have more than one group of processes subject to the equipment leak requirements. Keep records at the plant site in hard copy or electronic form [§63.1363(g)(1)].

General recordkeeping:

Except for records of pressure tests, the following information pertaining to all equipment subject to the equipment leak requirements must be recorded [§63.1363(g)(2)]:

- identification numbers for equipment (except instrumentation systems) subject to the equipment leak requirements [§63.1363(g)(2)(i)]

  Note : Connectors (except inaccessible connectors) do not need to be individually identified if all the connectors in an area are identified as a group and the number of connectors is indicated.

  You must complete the list for each type of equipment by the time you complete the initial survey required for that component. The list of identification numbers must be updated within 12 days after each monitoring survey to incorporate any equipment changes.

- a schedule for monitoring connectors and valves in gas/vapor or light liquid service [§63.1363(g)(2)(i)]
- identification numbers for equipment with a closed-vent system and control device that isn't subject to the equipment leak monitoring requirements [§63.1363(g)(2)(ii)]
- identification numbers for compressors that you designate as operating with an instrument reading of less than 500 ppm above background (these compressors are exempt from the monitoring requirements) [§63.1363(g)(2)(ii)]
- identification numbers for pressure relief devices in gas/vapor service subject to the equipment leak provisions and pressure relief devices with rupture disks [§63.1363(g)(2)(iii)]

- identification of instrumentation systems subject to the equipment leak provisions [§63.1363(g)(2)(iv)]
- the following information for each dual mechanical seal system installed on a pump in light liquid service, agitator in gas/vapor or light liquid service, or compressor [§63.1363(g)(2)(v)]:
  - design criteria that indicates failure of the seal system, the barrier fluid system, or both
  - your explanation of the design criteria
  - any changes to the design criteria and the reasons for the changes
- a list of equipment designated as unsafe to monitor, difficult to monitor, or inaccessible and a copy of the plan for monitoring or inspecting this equipment [§63.1363(g)(2)(vi)]
- a list of connectors removed from and added to the process if you plan to use the net credits for removed connectors when calculating the percent leaking connectors [§63.1363(g)(2)(vii)]
- documentation of the integrity of the weld for any removed connectors if you use the credit for removed connectors [§63.1363(g)(2)(vii)]
- a list of equipment added to batch processes since the last monitoring period if elect to monitor batch processes using alternative means of emission limitation [§63.1363(g)(2)(viii)]

Records of visual inspections:

You must document that visual inspections for leaks from pumps in light liquid service and agitators in gas/vapor and light liquid service were conducted [§63.1363(g)(3)]. Visual inspection records must contain the date and document monitoring of leaking equipment identified during the visual inspections (except for records of pressure tests). Keep these records for 5 years.

Monitoring records:

When each leak is detected you must record **all** of the following: [§63.1363(g)(4)]

- the instrument and the equipment identification number and the operator name, initials, or identification number
- date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair
- if post-repair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable
- whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay

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Note: You may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of you startup/shutdown/malfunction plan (required by §63.1367(a)) or may be part of a separate document maintained at the plant site. Reasons for delay of repair may be documented by citing the relevant sections of the written procedure. If delay of repair was caused by depletion of stocked parts, you must have documentation that the spare parts were sufficiently stocked onsite before depletion and the reason for depletion.

- if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired
- identification of connectors in gas/vapor and light liquid service disturbed since the last monitoring period (unless you use the option for not monitoring open connectors during the monitoring period). Connector identification may be maintained either by list, location, or tagging.
- date and results of follow-up monitoring for open or disturbed connectors. If identification of disturbed connectors is made by location, then all connectors within the designated location must be monitored
- date and results of monitoring done when using alternative means of emission limitation for batch processes for equipment added to a batch process since the last monitoring period. If no leaking equipment is found, you must record that the inspection was performed. Records of the actual monitoring results are not required
- copies of periodic reports if records are not maintained on a computerized data base capable of generating summary reports from the records

Keep all records for 5 years. At a minimum, the most recent 2 years of records must be retained onsite. The remaining 3 years of records may be retained off site. You may keep the records on microfilm, a computer, computer disks, magnetic tape disks, or on microfiche. [§63.10(b)(1) of subpart A]

Records of pressure tests:

If you show compliance with the equipment leak provisions by pressure testing process equipment and supply lines between storage and processing areas, then you're **exempt** from the requirements to keep all of the following: [§63.1363(g)(5)]

- general records
- records of visual inspections
- monitoring records
- records of compressor and pressure relief valve compliance tests

Instead, you must maintain records of **all** of the following information:

- identification of each product, or product code, produced during the calendar year. It is not necessary to identify individual items of equipment in the process equipment train.

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- records of the portion of time during the year the equipment is in use in the PAI process (e.g., records of time in use for individual pieces of equipment or average time in use for the process unit). These records aren't required if you don't adjust monitoring frequency by the time in use.
- identification of equipment. Physical tagging of the equipment is not required. Equipment in a process subject to recordkeeping provisions may be identified on a plant site plan, in log entries, or by other appropriate methods.
- the dates of each pressure test, the test pressure, and the pressure drop observed during the test.
- records of any evidence of fluid loss detected by sight, sound, or odor.
- when a process equipment train does not pass two consecutive pressure tests, **all** of the following information must be recorded in a log and kept for 2 years:
  - the dates of each pressure test and leak repair attempt
  - repair methods applied in each attempt to repair the leak
  - the reason for the delay of repair
  - the expected date for delivery of the replacement equipment and the actual date of delivery of the replacement equipment
  - the date of successful repair

Records of compressor and pressure relief valve compliance tests:

You must record the dates and results of **all** of the following [§63.1363(g)(6)]

- each compliance test required for compressors
- the monitoring after a pressure release for each pressure relief device in gas/vapor service.

The results you record must include the measured background level and maximum instrument reading at each piece of equipment during each compliance test.

Records for closed-vent systems.

You must keep records, for the life of the equipment, of the design specifications and performance demonstrations, including **all** of the following: [§63.1363(g)(7)(i)]

- detailed schematics, design specifications of the control device, and piping and instrumentation diagrams
- the dates and descriptions of any changes in the design specifications
- the flare design (i.e., steam assisted, air assisted, or nonassisted) and the results of the compliance demonstration

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- a description of the parameter or parameters monitored to ensure that control devices are operated and maintained as designed and an explanation of why each parameter was selected for the monitoring

You must keep **all** of the following operational records of closed-vent systems and control devices for 5 years: [§63.1363(g)(7)(ii)]

- dates and durations when the closed-vent systems and control devices are not operated as designed, as indicated by the monitored parameters. Include periods when a flare pilot light system does not have a flame
- dates and durations when the monitor is not operating
- dates and durations of startups and shutdowns of control devices

You must keep for 5 years **all** of the following records of inspections of closed-vent systems: [§63.1363(g)(7)(iii)]

- if no leaks are detected during the inspection, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected
- if leaks are detected during the inspection, the information specified in the above section on "monitoring records" must be recorded

Records for components in heavy liquid service:

You must record information and analyses used to determine that a piece of equipment is in heavy liquid service. The determination must include an analysis or demonstration that the process fluids do not meet the criteria of "in light liquid or gas/vapor service."

Examples of information that could document that a fluid is not "in light liquid or gas/vapor service" include records of chemicals purchased for the process, analyses of process stream composition, engineering calculations, or process knowledge [§63.1363(g)(8)].

Records of exempt components:

You must record identification of equipment that is in organic HAP service less than 300 hr/yr. Equipment may be identified by list, location, or other method [§63.1363(g)(9)].

Records of alternative means of compliance determination:

If you choose to comply with the alternative emission limit for enclosed-vent process units, you must maintain **all** of the following records: [§63.1363(g)(10)]

- identification of the processes and the organic HAP they handle
- a schematic of the process, enclosure, and closed-vent system.

- a description of the system used to create a negative pressure in the enclosure to ensure that all emissions are routed to the control device

Records for valves in gas/vapor service and light liquid service.

If you divide your valves by process subgroups, then you must keep records of **all** of the following: [§63.1363(e)(5)(iv)]

- which valves are assigned to each subgroup
- monitoring results and calculations made for each subgroup for each monitoring period
- which valves are reassigned and when they were reassigned
- results of the semiannual overall performance calculation

You must notify the Administrator of the decision to subgroup valves no later than 30 days before the beginning of the next monitoring period. In the notification, you must identify the participating processes and the valves assigned to each subgroup.[§63.1363(e)(5)(v)]

What reports must I submit?

To avoid repetition, all of your reporting requirements are presented in Chapter 8.

Checklists for Equipment Leak Inspections

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

The table below explains which inspection checklists you should use for determining compliance with the equipment leak requirements.

For the following equipment...	Then use these checklists:
Pumps in light liquid service and agitators in gas/vapor service and in light liquid service	1 and 2
Open-ended valves or lines	1 and 3
Valves in gas/vapor service and light liquid service	1 and 4
Compressors	1 and 5
Pressure relief devices in gas/vapor service	1 and 6
Sampling connection systems	1 and 7
Pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service	1 and 8
Closed-vent systems and control devices	1 and 9
Connectors in gas/vapor service and in light liquid service	1 and 10
Equipment meeting alternative means of emission limitation	1 and 11

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Checklist 1:
Identification of Equipment

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring and Inspection Requirements			**Comments**
1. Did you label each piece of equipment covered by the equipment leak provisions using **any** of the following methods:			
• physically tagging the equipment	☐ Yes	☐ No	
• marking the equipment on a plant site plan	☐ Yes	☐ No	
• marking the equipment in log entries	☐ Yes	☐ No	
• designating process boundaries with waterproof identification	☐ Yes	☐ No	
• another appropriate method for identifying equipment *§63.1363(a)(7)*	☐ Yes	☐ No	
2. If you made changes to equipment subject to the leak detection requirements, did you update the equipment identification in question 1 (if needed) within 15 calendar days of the end of the monitoring period for the component? *§63.1363(a)(7)*	☐ Yes	☐ No	
3. If a leak was detected, did you attach a visible, weatherproof identification to the leaking equipment? *§63.1363(a)(10)*	☐ Yes	☐ No	
4. Did the identification in question 4 remain on the equipment until **either**:			
• after the leak was repaired for equipment other than valves or connectors in light liquid or gas/vapor service	☐ Yes	☐ No	
• no leak was detected by follow-up monitoring for valves or connectors in light liquid or gas/vapor service *§63.1363(a)(10)*	☐ Yes	☐ No	

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Checklist 2: Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring and Inspection Requirements			**Comments**
1. Did you monitor for leaks using the method in §63.180(b)? *§63.1363(c)(2)(i)*	☐ Yes	☐ No	
2. Did you calculate the percent of leaking pumps using the procedure outlined in §63.1363(c)(4)?	☐ Yes	☐ No	
3. Did you monitor each pump monthly if (based on a 1-year rolling average) the greater of either: • 10 percent of the pumps in a group of processes leak • three pumps in a group of processes leak *§63.1363(c)(4)*	☐ Yes	☐ No	
4. Have you performed weekly visual inspections of each pump and agitator for indications of liquids dripping from the pump or agitator seal? *§63.1363(c)(2)(iii)*	☐ Yes	☐ No	
5. Have you done the following for each pump or agitator equipped with a dual mechanical seal:			
• ensured that the dual mechanical seal has either: ▸ a barrier fluid pressure that is always greater than the pump/agitator stuffing box pressure ▸ a barrier fluid degassing reservoir connected by a closed-vent system to a control device ▸ a closed-loop system that purges the barrier fluid into a process stream	☐ Yes	☐ No	
• observed the barrier fluid system failure sensor daily (unless the sensor has an alarm or the equipment is at an unmanned plant site)	☐ Yes	☐ No	
• visually inspected each pump/agitator weekly and monitored for leaks if liquids are dripping from the seal	☐ Yes	☐ No	
• repaired any leaks	☐ Yes	☐ No	
• included the pump in the calculation of percent leaking pumps *§63.1363(c)(5)*	☐ Yes	☐ No	

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Checklist 2: *(cont'd)*
Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service

A. Monitoring and Inspection Requirements			**Comments**
6. Have you done the following for each pump or agitator designed with no externally actuated shaft penetrating the pump/agitator housing:			
• performed weekly visual inspections for indications of liquids dripping from the pump or agitator seal	☐ Yes	☐ No	
• included the pumps in the calculation of percent leaking pumps *§63.1363(c)(6)*	☐ Yes	☐ No	
7. Have you visually inspected each pump or agitator at unmanned plant sites at least once per month? *§63.1363(c)(8)*	☐ Yes	☐ No	
B. Leak Repair Requirements			**Comments**
1. Was a first attempt to repair the leak made within 5 days after the leak was detected? First attempts to repair leaks include:	☐ Yes	☐ No	
• tightening of packing gland nuts			
• ensuring the seal flush is operating at design pressure and temperature *§63.1363(c)(3)*			
2. Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied:	☐ Yes	☐ No	
• the repair was technically infeasible without a process unit shutdown			
• the equipment was isolated from the process and did not remain in organic HAP service			
• emissions purged from the equipment during immediate repair would be greater than emissions resulting from delaying the repair and using a control device to reduce the emissions			
• pump repair requires replacement of the existing seal with a new system that will better meet the PAI rule requirements *§63.1363(c)(3)*			
3. If you determined that a repair was technically infeasible without a process unit shutdown, did you complete the repair by the end of the next process unit shutdown? *§63.1363(b)(3)(i)(A) as cross referenced by §63.1363(c)(3)*	☐ Yes	☐ No	
4. Use of a control device is necessary if you determined that emissions purged from equipment during immediate leak repair would be greater than emissions resulting from delaying the repair. Did you use a control device to reduce emissions generated during leak repair? *§63.171(c) as cross referenced by §63.1363(c)(3)*	☐ Yes	☐ No	

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Checklist 2: *(cont'd)*
Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service

B.	**Leak Repair Requirements**			**Comments**
5.	If you determined that pump repair required replacement of the existing seal with a new system to better meet the PAI rule requirements, did you repair the leak less than 6 months from the time when the leak was detected? *§63.171(d) as cross referenced by §63.1363(c)(3)*	☐ Yes	☐ No	
C.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do your records include identification numbers for pumps and agitators subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2.	Have you updated the list of identification numbers in question 1 within 15 days after each monitoring survey to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3.	Do your records include identification numbers for pumps and agitators with a closed-vent system and control device that are not subject to the equipment leak monitoring requirements? *§63.1363(g)(2)(ii)(A)*	☐ Yes	☐ No	
4.	Do your records include the following information for each dual mechanical seal system installed on a pump or agitator:			
	• design criteria that indicates failure of the seal system, the barrier fluid system, or both	☐ Yes	☐ No	
	• your explanation of the design criteria	☐ Yes	☐ No	
	• any changes to the design criteria and the reasons for the changes *§63.1363(g)(2)(v)*	☐ Yes	☐ No	
5.	Do your records include a list of equipment designated as unsafe to monitor, difficult to monitor, or inaccessible and a plan for monitoring or inspecting this equipment? *§63.1363(g)(2)(vi)*	☐ Yes	☐ No	
6.	Do your records include documentation that visual inspection for leaks in pumps and agitators were conducted, including both:	☐ Yes	☐ No	
	• the date if the inspection			
	• documentation of monitoring performed on leaking equipment identified during the inspection *§63.1363(g)(3)*			

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Checklist 2: *(cont'd)*
Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service

C. Recordkeeping and Reporting Requirements			Comments
7. If you detected a leak, have you recorded:			
• the instrument and the equipment identification number and the operator name, initials, or identification number	☐ Yes	☐ No	
• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair	☐ Yes	☐ No	
• if post-repair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable	☐ Yes	☐ No	
• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay	☐ Yes	☐ No	
• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired	☐ Yes	☐ No	
• copies of periodic reports if records are not maintained on a computerized data base capable of generating summary reports from the records *§63.1363(g)(4)*	☐ Yes	☐ No	
8. Do your records include information and analyses used to determine that a piece of equipment is in heavy liquid service (i.e., not "in light liquid or gas/vapor service" and therefore not subject to equipment leak requirements)? *§63.1363(g)(8)*	☐ Yes	☐ No	
9. Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	
10. Did you include the following in your periodic report for each monitoring period during the 6-month reporting period?			
• the number of pumps and agitators for which leaks were detected, the percent leakers, and the total number of pumps and agitators monitored	☐ Yes	☐ No	
• the number of pumps and agitators for which leaks were not repaired	☐ Yes	☐ No	
• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible	☐ Yes	☐ No	
• if applicable, the initiation of a monthly monitoring program if more than 10 percent of pumps in light liquid service (or three pumps if three is greater than 10 percent) leak *§63.1363(h)(3)(ii)*	☐ Yes	☐ No	
11. Did you include any change in the Notification of Compliance Status report in your periodic report? *§ 63.1363(h)(3)(iv)*	☐ Yes	☐ No	

Checklist 2: *(cont'd)*
Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service

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Checklist 3: Requirements for open-ended valves or lines (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Operating Requirements			**Comments**
1. Have you equipped open-ended valves or lines with a cap, blind flange, plug, or a second valve? *§63.1363(d)(1)(i)*	☐ Yes	☐ No	
2. Does the open end remain sealed at all times except when either: • operations require flow of process fluid through the open-ended valve or line • maintenance or repair is being conducted *§63.1363(d)(1)(ii)*	☐ Yes	☐ No	
3. Did you replace the seal within 1 hour after completion of the activities in question 2? *§63.1363(d)(1)(ii)*	☐ Yes	☐ No	
4. If you equipped open-ended valves or lines with a second valve, have you ensured that the valve on the process fluid end is closed before the second valve is closed? *§63.1363(d)(2)*	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			**Comments**
1. Do your records include identification numbers for open-ended valves or lines subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2. Have you updated the list of identification numbers in question 1 as needed to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3. Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	
4. Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

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Checklist 4: Requirements for valves in gas/vapor service and light liquid service (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A.	**Monitoring Requirements**			**Comments**
1.	Did you perform initial monitoring for leaks using the method in §63.180(b) by no later than 1 year after the compliance date (e.g., by June 23, 2003 for existing sources)? *§63.1363(e)(2)*	☐ Yes	☐ No	
2.	Have you assigned valves to process groups or subgroups according to the procedures outlined in §§63.1363(e)(5) and (6)?	☐ Yes	☐ No	
3.	Have you determined the overall performance of valves in each group every 6 months according to the procedures in §§63.1363(e)(5)(iii) and (e)(6)(ii)?	☐ Yes	☐ No	
4.	If your overall performance is ≥2 percent leaking valves, have you performed monitoring at the appropriate frequency (frequencies are specified in §63.1363(e)(5)(vii) and (e)(6)(iii))?	☐ Yes	☐ No	

B.	**Leak Repair Requirements**			**Comments**
1.	Was a first attempt to repair the leak made within 5 days after the leak was detected? First attempts to repair leaks include: • tightening or replacement of bonnet bolts • tightening of packing gland nuts • injection of lubricant into lubricated packing *§63.1363(e)(7)(ii) and (e)(8)*	☐ Yes	☐ No	

Checklist 4: *(cont'd)*
Requirements for valves in gas/vapor service and light liquid service

B. Leak Repair Requirements			**Comments**
2. Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: • the repair was technically infeasible without a process unit shutdown • the equipment was isolated from the process and did not remain in organic HAP service • emissions purged from the equipment during immediate repair would be greater than emissions resulting from delaying the repair and using a control device to reduce the emissions • valve assembly supplies are not on hand and valve replacement is needed during a process unit shutdown *§§63.1363(b)(3)(i) and 63.171(b) through (e) as cross referenced by §63.1363(e)(7)(i)*	☐ Yes	☐ No	
3. If you determined that a repair was technically infeasible without a process unit shutdown, did you complete the repair by the end of the next process unit shutdown? *§63.1363(b)(3)(i)(A) as cross referenced by §63.1363(e)(7)(i)*	☐ Yes	☐ No	
4. Use of a control device is necessary if you determined that emissions purged from equipment during immediate leak repair would be greater than emissions resulting from delaying the repair. Did you use a control device to reduce emissions generated during leak repair? *§63.171(c) as cross referenced by §63.1363(e)(7)(i)*	☐ Yes	☐ No	
5. If valve assembly supplies were not on hand during a process unit shutdown when valve replacement was needed, did you replace the valve assembly during the next process unit shutdown (unless a third shutdown occurred within 6 months from the first process unit shutdown)? *§63.171(e) as cross referenced by §63.1363(e)(7)(i)*	☐ Yes	☐ No	
6. If you made repairs to valves, did you monitor the valves at least once while the valves were in organic HAP service within the first 3 months after the repairs were made? *§63.1363(e)(7)(iii)*	☐ Yes	☐ No	
C. Recordkeeping and Reporting Requirements			**Comments**
1. Do your records include identification numbers for valves subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	

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Checklist 4: *(cont'd)*
Requirements for valves in gas/vapor service and light liquid service

C. Recordkeeping and Reporting Requirements			Comments
2. Have you updated the list of identification numbers in question 1 within 15 days after each monitoring survey to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3. Do your records include a valve monitoring schedule? *§63.1363(g)(2)(i)(B)*	☐ Yes	☐ No	
4. Do your records include all of the following information pertaining to assignment of valves to process subgroups:			
• which valves are assigned to each subgroup	☐ Yes	☐ No	
• monitoring results and calculations made for each subgroup for each monitoring period	☐ Yes	☐ No	
• which valves are reassigned and when they were reassigned	☐ Yes	☐ No	
• results of the semiannual overall performance calculation *§63.1363(e)(5)(iv)*	☐ Yes	☐ No	
5. Did you notify the Administrator of the decision to subgroup valves earlier than 30 days before the beginning of the monitoring period? (The notification must identify the participating processes and the valves assigned to each subgroup.) *§63.1363(e)(5)(v)*	☐ Yes	☐ No	
6. Do your records include a list of equipment designated as unsafe to monitor, difficult to monitor, or inaccessible and a plan for monitoring or inspecting this equipment? *§63.1363(g)(2)(vi)*	☐ Yes	☐ No	
7. If you detected a leak, have you recorded:			
• the instrument and the equipment identification number and the operator name, initials, or identification number	☐ Yes	☐ No	
• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair	☐ Yes	☐ No	
• if post-repair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable	☐ Yes	☐ No	
• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay	☐ Yes	☐ No	
• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired	☐ Yes	☐ No	
• copies of periodic reports if records are not maintained on a computerized data base capable of generating summary reports from the records *§63.1363(g)(4)*	☐ Yes	☐ No	

Checklist 4: *(cont'd)*
Requirements for valves in gas/vapor service and light liquid service

C.	**Recordkeeping and Reporting Requirements**			**Comments**
8.	Do your records include information and analyses used to determine that a piece of equipment is in heavy liquid service (i.e., not "in light liquid or gas/vapor service" and therefore not subject to equipment leak requirements)? *§63.1363(g)(8)*	☐ Yes	☐ No	
9	Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	

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Checklist 4: *(cont'd)*
Requirements for valves in gas/vapor service and light liquid service

C. Recordkeeping and Reporting Requirements			Comments
10. Did you include the following in your periodic report for each monitoring period during the 6-month reporting period?			
• the number of valves with leaks detected, the percent leakers, and the total number of valves monitored	☐ Yes	☐ No	
• the number of valves with leaks that were not repaired and the number of those valves that are non-repairable	☐ Yes	☐ No	
• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible	☐ Yes	☐ No	
• if applicable, the initiation of a monthly monitoring program if 2 percent or more valves leak *§63.1363(h)(3)(ii)*	☐ Yes	☐ No	
11. Did you include the following information in your periodic report:			
• valve reassignments occurring during the reporting period	☐ Yes	☐ No	
• results of the semiannual overall performance calculation *§63.1363(e)(5)(vi)*	☐ Yes	☐ No	
12. Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

Checklist 5: Requirements for compressors (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Design Requirements			**Comments**
1. Are your compressors equipped with a seal system that includes a barrier fluid system to prevent leaks of process fluid to the atmosphere? *§63.164(a)*	☐ Yes	☐ No	
2. Is the compressor seal system:			
• operated with the barrier fluid pressure greater than the compressor stuffing box pressure	☐ Yes	☐ No	
• equipped with a barrier fluid system degassing reservoir that is routed to a process or fuel gas system or connected by a closed-vent system to a control device	☐ Yes	☐ No	
• equipped with a closed-loop system that purges the barrier fluid directly into a process stream *§63.164(b)*	☐ Yes	☐ No	
3. Is the barrier fluid in heavy liquid service? *§63.164(c)*	☐ Yes	☐ No	
4. Is the barrier fluid system equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both the seal and barrier fluid system? *§63.164(d)*	☐ Yes	☐ No	
5. Have you observed the barrier fluid system failure sensor daily (unless the sensor has an alarm or the equipment is at an unmanned plant site) *§63.164(e)*	☐ Yes	☐ No	
6. Have you tested compressors designated to operate with an instrument reading of less than 500 ppm above background to ensure compliance with the 500 ppm limit upon designation and annually. *§63.164(i)*	☐ Yes	☐ No	

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Checklist 5: ***(cont'd)***
Requirements for compressors

B. Leak Repair Requirements			Comments
1. Was a first attempt to repair the leak made within 5 days after the leak was detected? *§63.164(g)*	☐ Yes	☐ No	
2. Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: • the repair was technically infeasible without a process unit shutdown *§63.1363(b)(3)(i)(A) as cross referenced by §63.164(g)(1)* • the equipment was isolated from the process and did not remain in organic HAP service *§63.171(b) as cross referenced by §63.164(g)(1)*	☐ Yes	☐ No	
3. If you determined that a repair was technically infeasible without a process unit shutdown, did you complete the repair by the end of the next process unit shutdown? *§63.1363(b)(3)(i)(A) as cross referenced by §63.164(g)(1)*	☐ Yes	☐ No	

C. Recordkeeping and Reporting Requirements			Comments
1. Do your records include identification numbers for compressors subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2. Have you updated the list of identification numbers in question 1 to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3. Do your records include identification numbers for compressors with a closed-vent system and control device that are not subject to the equipment leak monitoring requirements? *§63.1363(g)(2)(ii)(A)*	☐ Yes	☐ No	
4. Do your records include identification numbers for compressors that you designate as operating with an instrument reading of less than 500 ppm above background (these compressors are exempt from the monitoring requirements) *§63.1363(g)(2)(ii)(B)*	☐ Yes	☐ No	
5. Do your records include the following information for each compressor:			
• design criteria that indicates failure of the seal system, the barrier fluid system, or both	☐ Yes	☐ No	
• your explanation of the design criteria	☐ Yes	☐ No	
• any changes to the design criteria and the reasons for the changes *§ 63.1363(g)(2)(v)*	☐ Yes	☐ No	

Checklist 5: *(cont'd)*
Requirements for compressors

C. Recordkeeping and Reporting Requirements			Comments
6. If you detected a leak, did you record:			
• the instrument and the equipment identification number and the operator name, initials, or identification number	☐ Yes	☐ No	
• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair	☐ Yes	☐ No	
• if post-repair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable	☐ Yes	☐ No	
• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay	☐ Yes	☐ No	
• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired	☐ Yes	☐ No	
• copies of periodic reports if records are not maintained on a computerized data base capable of generating summary reports from the records *§63.1363(g)(4)*	☐ Yes	☐ No	
7. Did you record the dates and results (including the measured background level and maximum instrument reading for each compressor) of each test to demonstrate compliance with the 500 ppm limit for designated compressors? *§63.1363(g)(6)*	☐ Yes	☐ No	
8. Do your records include information and analyses used to determine that a piece of equipment is in heavy liquid service (i.e., not "in light liquid or gas/vapor service" and therefore not subject to equipment leak requirements)? *§63.1363(g)(8)*	☐ Yes	☐ No	
9. Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	
10. Did you include the following in your periodic report for each monitoring period during the 6-month reporting period?			
• the number of compressors for which leaks were detected	☐ Yes	☐ No	
• the number of compressors for which leaks were not repaired	☐ Yes	☐ No	
• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible	☐ Yes	☐ No	
• the results of all monitoring to show compliance with the 500 ppm limit for compressors designated to operate below 500 ppm *§63.1363(h)(3)(ii)*	☐ Yes	☐ No	

Checklist 5: *(cont'd)*
Requirements for compressors

C. Recordkeeping and Reporting Requirements			Comments
11. Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

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Checklist 6: Requirements for pressure relief devices in gas/vapor service (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirements			**Comments**
Note: You are exempt from the requirements for pressure relief devices in gas/vapor service if your pressure relief device is routed to a combustion unit or is equipped with a closed-vent system and control device. *§ 63.165(c)*			
1. Do your pressure relief devices have a leak detection instrument reading of less than 500 ppm above background (except during pressure releases) when monitored using the method in §63.180(c)? *§63.165(a)*	☐ Yes	☐ No	
2. Following a pressure release:			
• Did you return the pressure relief device to less than 500 ppm above background as soon as possible? *§63.165(b)*	☐ Yes	☐ No	
• Did you either:	☐ Yes	☐ No	
▸ monitor your pressure relief device within 5 days after a pressure release and return of the pressure relief device to organic HAP service to ensure a reading of less than 500 ppm above background *§63.165(b)*			
▸ place a rupture disk upstream of your pressure relief device within 5 days following the pressure release *§63.165(d)*			

B. Recordkeeping and Reporting Requirements			**Comments**
1. Do your records include identification numbers for pressure relief devices subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2. Have you updated the list of identification numbers in question 1 within 15 days after each monitoring survey to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3. Do your records include identification numbers for pressure relief devices with a closed-vent system and control device that are not subject to the equipment leak monitoring requirements? *§63.1363(g)(2)(ii)(A)*	☐ Yes	☐ No	
4. Do your records include identification numbers for pressure relief devices subject to the equipment leak provisions and pressure relief devices with rupture disks? *§63.1363(g)(2)(iii)*	☐ Yes	☐ No	

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Checklist 6: *(cont'd)*
Requirements for pressure relief devices in gas/vapor service

B.	Recordkeeping and Reporting Requirements			Comments
5.	Do your records include the dates and results (including measured background concentration and maximum instrument reading) of monitoring after pressure releases at each pressure relief device? *§63.1363(g)(6)*	☐ Yes	☐ No	
6.	Do your records include information and analyses used to determine that a piece of equipment is in heavy liquid service (i.e., not "in light liquid or gas/vapor service" and therefore not subject to equipment leak requirements)? *§63.1363(g)(8)*	☐ Yes	☐ No	
7.	Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	
8.	Did you include the results of all monitoring to show compliance with the 500 ppm limit in your periodic report for each monitoring period during the 6-month reporting period? *§63.1363(h)(3)(ii)*	☐ Yes	☐ No	
9.	Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

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Checklist 7: Requirements for sampling connection systems (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Design Requirements			**Comments**
Note: In-situ sampling systems and sampling systems without purges are exempt from the above requirements for sampling connection systems.			
1. Do each of your sampling connection systems have a closed-purge, closed-loop, or closed-vent system? *§63.166(a)*	☐ Yes	☐ No	
2. Do the closed-purge, closed-loop, or closed-vent systems do one of the following: • collect and recycle purged process fluid to a process • capture and transport purged process fluid to a control device • collect, store, and transport purged process fluid to a waste management unit, TSDF, or permitted waste management facility *§63.166(b)*	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements			**Comments**
1. Do your records include identification numbers for sampling connection systems subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2. If necessary, have you updated the list of identification numbers in question 1 to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3. Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	
4. Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

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Checklist 8: Requirements for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring Requirement			**Comments**
1. After detecting a potential leak, did you either: • monitor for leaks using the method in § 63.180(b) within 5 days after the potential leak is detected • repair the leak such that any of the following are true: ▸ you can no longer see, hear, smell, or otherwise detect the potential leak ▸ you see no bubbles at potential leak sites during a leak check with soap solution ▸ the system will hold a test pressure *§63.169(a) and (c)(3)*	☐ Yes	☐ No	

B. Leak Repair Requirements			**Comments**
1. Was a first attempt to repair the leak made within 5 days after the leak was detected? First attempts to repair leaks include: • tightening of packing gland nuts • ensuring the seal flush is operating at design pressure and temperature • tightening or replacement of valve bonnet bolts • injection of lubricant into lubricated packing *§63.169(c)(2) and (d)*	☐ Yes	☐ No	

Checklist 8: *(cont'd)*
Requirements for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service

B.	**Leak Repair Requirements**			**Comments**
2.	Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: • the repair was technically infeasible without a process unit shutdown • the equipment was isolated from the process and did not remain in organic HAP service • emissions purged from the equipment during immediate repair would be greater than emissions resulting from delaying the repair and using a control device to reduce the emissions • pump repair requires replacement of the existing seal with a new system that will better meet the PAI rule requirements • valve assembly supplies are not on hand and valve replacement is needed during a process unit shutdown *§§ 63.1363(b)(3)(i)(A) and 63.171 as cross referenced by §63.169(c)(2)*	☐ Yes	☐ No	
3.	If you determined that a repair was technically infeasible without a process unit shutdown, did you complete the repair by the end of the next process unit shutdown? *§63.171(a) as cross referenced by § 63.169(c)(2)*	☐ Yes	☐ No	
4.	Use of a control device is necessary if you determined that emissions purged from equipment during immediate leak repair would be greater than emissions resulting from delaying the repair. Did you use a control device to reduce emissions generated during leak repair? *§63.171(c) as cross referenced by §63.169(c)(2)*	☐ Yes	☐ No	
5.	If you determined that pump repair required replacement of the existing seal with a new system to better meet the PAI rule requirements, did you repair the leak less than 6 months from the time when the leak was detected? *§63.175(d) as cross referenced by §63.169(c)(2)*	☐ Yes	☐ No	
6.	If valve assembly supplies were not on hand during a process unit shutdown when valve replacement was needed, did you replace the valve assembly during the next process unit shutdown (unless a third shutdown occurred within 6 months from the first process unit shutdown)? *§63.171(e) as cross referenced by §63.169(c)(2)*	☐ Yes	☐ No	

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Checklist 8: *(cont'd)*
Requirements for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service

C. Recordkeeping and Reporting Requirements			Comments
1. Do your records include identification numbers for equipment (except instrumentation systems) subject to the equipment leak requirements? (Note that connectors do not need to be individually identified if all the connectors in an area are identified as a group and the number of connectors is indicated.) *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2. Have you updated the list of identification numbers in question 1 within 15 days after each monitoring survey to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3. Do your records include identification of instrumentation systems subject to the equipment leak requirements? *§63.1363(g)(2)(iv)*	☐ Yes	☐ No	
4. If you detected a leak, have you recorded:			
• the instrument and the equipment identification number and the operator name, initials, or identification number	☐ Yes	☐ No	
• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair	☐ Yes	☐ No	
• if post-repair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable	☐ Yes	☐ No	
• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay	☐ Yes	☐ No	
• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired	☐ Yes	☐ No	
• copies of periodic reports if records are not maintained on a computerized data base capable of generating summary reports from the records *§63.1363(g)(4)*	☐ Yes	☐ No	
5. Do your records include information and analyses used to determine that a piece of equipment is in heavy liquid service? *§63.1363(g)(8)*	☐ Yes	☐ No	
6. Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	
7. Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

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Checklist 9: Requirements for closed-vent systems and control devices (Option 2)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Operating Requirements			Comments
1. Have you operated your closed-vent system and control device at all times when organic HAP emissions are being vented? *§63.172(m)*	☐ Yes	☐ No	
2. If you operate a recovery or capture device (e.g., condenser, absorber, etc.), have you met either ≥95 percent reduction or 20 ppmv? (The 20 ppmv standard is not applicable if you meet the alternative standards for enclosed-vent process units.) *§63.172(b)*	☐ Yes	☐ No	
3. If you operate an enclosed combustion device, have you met either ≥95 percent reduction, 20 ppmv (dry basis, 3 percent oxygen), or a minimum residence time of 0.5 sec. At 1400°F (760°C)? *§63.172(c)*	☐ Yes	☐ No	
4. If you operate a flare, have you met the requirements of § 63.11(b)? *§63.172(d)*	☐ Yes	☐ No	

B. Monitoring and Inspection Requirements			Comments
1. If your closed-vent system is made of hard-piping, did you perform an annual visual inspection for visible, audible, or olfactory indications of leaks? *§63.172(f)(1)(ii)*	☐ Yes	☐ No	
2. If your vapor collection system or closed-vent system is made of duct work, did you conduct an annual inspection according to the procedures in §63.180(b)? *§63.172(f)(2)(ii) and (g)*	☐ Yes	☐ No	
3. If your closed-vent system has bypass lines that could divert a vent stream away from the control device and to the atmosphere, have you done one of the following: • Used a flow indicator that takes a reading at least once every 15 minutes at the entrance of the bypass line. • Secured the bypass line valve in the non-diverting position with a car-seal or a lock-and-key type configuration. *§63.172(j)* *Note: Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to the monitoring requirements for bypass lines. §63.172(j)(3)*	☐ Yes	☐ No	

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Checklist 9: *(cont'd)*
Requirements for closed-vent systems and control devices

B.	**Monitoring and Inspection Requirements**			**Comments**
4.	If you secured the bypass line valve in the non-diverting position as specified in question 3, did you visually inspect the seal or closure mechanism monthly to ensure the valve is maintained in the non-diverting position? *§63.172(j)(2)*	☐ Yes	☐ No	
5	If you design a closed-vent system to operate below atmospheric pressure (instead of completing inspections), have you equipped the system with a pressure measurement device that can be read from a readily accessible location to verify that negative pressure is maintained when the control device is operating? *§63.1363(b)(3)(ii)(B)*	☐ Yes	☐ No	
C.	**Leak Repair Requirements**			**Comments**
1.	Was a first attempt to repair the leak made within 5 days after the leak was detected? *§63.172(h)(1)*	☐ Yes	☐ No	
2.	Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: • the repair was technically infeasible without a process unit shutdown • emissions resulting from immediate repair of the leak would be greater than the fugitive emissions likely to result from delay of repair *§63.172(h)(2)(i)*	☐ Yes	☐ No	
3.	If you determined that a repair was technically infeasible without a process unit shutdown, did you complete the repair by the end of the next process unit shutdown? *§63.172(i)*	☐ Yes	☐ No	
D.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do your records include identification numbers for closed-vent systems and control devices subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2.	Have you updated the list of identification numbers in question 1 within 15 days after each monitoring survey to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3.	Do your records include a list of equipment designated as unsafe to monitor, difficult to monitor, or inaccessible and a plan for monitoring or inspecting this equipment? *§63.1363(g)(2)(vi)*	☐ Yes	☐ No	

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Checklist 9: *(cont'd)*
Requirements for closed-vent systems and control devices

D. Recordkeeping and Reporting Requirements			Comments
4. If you detected a leak, have you recorded:			
• the instrument and the equipment identification number and the operator name, initials, or identification number	☐ Yes	☐ No	
• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair	☐ Yes	☐ No	
• if post-repair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable	☐ Yes	☐ No	
• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay	☐ Yes	☐ No	
• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired	☐ Yes	☐ No	
• copies of periodic reports if records are not maintained on a computerized data base capable of generating summary reports from the records *§63.1363(g)(4)*	☐ Yes	☐ No	
5. If you use a flow meter to monitor your closed-vent system bypass line, do your records include the flow meter readings? *§63.172(j)*	☐ Yes	☐ No	
6. Do your records include all of the following design and performance documentation:			
• detailed schematics, design specifications of the control device, and piping and instrumentation diagrams	☐ Yes	☐ No	
• the dates and descriptions of any changes in the design specifications	☐ Yes	☐ No	
• the flare design (i.e., steam assisted, air assisted, or nonassisted) and the results of the compliance demonstration	☐ Yes	☐ No	
• a description of the parameter or parameters monitored to ensure that control devices are operated and maintained as designed and an explanation of why each parameter was selected for the monitoring *§63.1363(g)(7)(i)*	☐ Yes	☐ No	

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Checklist 9: *(cont'd)*
Requirements for closed-vent systems and control devices

D. Recordkeeping and Reporting Requirements			Comments
7. Do your records include all of the following operational information:			
• dates and durations when the closed-vent systems and control devices are not operated as designed, as indicated by the monitored parameters. Include periods when a flare pilot light system does not have a flame	☐ Yes	☐ No	
• dates and durations when the monitor is not operating	☐ Yes	☐ No	
• dates and durations of startups and shutdowns of control devices *§63.1363(g)(7)(ii)*	☐ Yes	☐ No	
8. Do your records include all of the following inspection information:			
• if no leaks are detected during the inspection, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected	☐ Yes	☐ No	
• if leaks are detected during the inspection, the information specified in question 4 must be recorded *§63.1363(g)(7)(iii)*	☐ Yes	☐ No	
9. Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	
10. Did you include the following in your periodic report for each monitoring period during the 6-month reporting period?			
• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible	☐ Yes	☐ No	
• the results of all monitoring to show compliance with the provisions for inspections of closed vent systems *§63.1363(h)(3)(ii)*	☐ Yes	☐ No	
11. Have you identified in your periodic report whether you are complying with the monitoring, recordkeeping, and reporting requirements in either:	☐ Yes	☐ No	
• 40 CFR part 264, subpart BB, or in 40 CFR part 265, subpart BB			
• the PAI rule *§63.172(j)*			
12. Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

Checklist 10: Requirements for connectors in gas/vapor service and in light liquid service (Option 1)

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring and Inspection Requirements			Comments
1. Did you monitor for leaks using the method in §63.180(b)? *§63.174(a)*	☐ Yes	☐ No	
2. Did you perform initial monitoring of all connectors either: • within 12 months after the compliance date at existing sources *§63.174(b)(1)* • within 12 months from initial start-up (or by no later than 12 months after the date of promulgation of subpart MMM) at new sources *§63.174(b)(2)*	☐ Yes	☐ No	
3. Have you determined your percent leaking connectors using the methods in §63.174(i)?	☐ Yes	☐ No	
4. Have you performed repeat monitoring at the time intervals below that apply to you: • each year if your percent leaking connectors is ≥0.5% • every 4 years if your percent leaking connectors is ≥0.25 to 0.5% • every 8 years if your percent leaking connectors is <0.25% • every 2 years if your percent leaking connectors is 0.5 to <1% *§ 63.174(b)(3)*	☐ Yes	☐ No	
5. Have you monitored connectors that have been opened or have a broken seal using one of the following two options: • Monitored the connector for leaks when it is reconnected or within the first 3 months after it is returned to organic HAP service. If a leak was detected, you repaired the leak (unless it is determined to be nonrepairable). • Didn't monitor the connector and didn't count the connector as nonrepairable. *§63.174(c)(1)(i) and (ii)*	☐ Yes	☐ No	

Checklist 10: *(cont'd)*
Requirements for connectors in gas/vapor service and in light liquid service

A. Monitoring and Inspection Requirements			Comments
6. If you switched between the two monitoring alternatives in question 5, did you do both of the following:			
• Make the switch at the end of the current monitoring period (if the switch is reported)	☐ Yes	☐ No	
• Complete initial monitoring in the new alternative no later than 12 months after you reported the switch *§63.174(c)(1)(iii)*	☐ Yes	☐ No	
7. For each screwed connector with an inside diameter of 2 inches or less installed before November 10, 1997, have you done one of the following	☐ Yes	☐ No	
• performed repeat monitoring as described in question 4			
• complied with the requirements of §63.169 of subpart H			
• monitored for leaks within the first 3 months after the screwed connector is returned to organic HAP service after having been opened or having the seal broken and making necessary repairs *§63.174(c)(2)*			
8. If you took credit for elimination of a connector, were all of the following requirements are met:			
• The connector was welded after November 10, 1997	☐ Yes	☐ No	
• The integrity of the weld was demonstrated by monitoring, X-ray testing, acoustic monitoring, hydrotesting, or other method	☐ Yes	☐ No	
• Welds created after November 10, 1997 but before June 23, 1999 were monitored or tested by 3 months after the compliance date	☐ Yes	☐ No	
• Welds created after June 23, 1999 were monitored or tested within 3 months after being welded	☐ Yes	☐ No	
• If an inadequate weld was found or the connector was not welded completely around the circumference, the connector was not exempted from the monitoring requirements *§63.174(j)*	☐ Yes	☐ No	

B. Leak Repair Requirements			Comments
1. Was a first attempt to repair the leak made within 5 days after the leak was detected? *§63.174(d)*	☐ Yes	☐ No	

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Checklist 10: *(cont'd)*
Requirements for connectors in gas/vapor service and in light liquid service

B.	Leak Repair Requirements			Comments
2.	Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: • the repair was technically infeasible without a process unit shutdown • the equipment was isolated from the process and did not remain in organic HAP service • emissions purged from the equipment during immediate repair would be greater than emissions resulting from delaying the repair and using a control device to reduce the emissions *§§63.1363(b)(3)(i) and 63.171 as cross referenced by §63.174(d)*	☐ Yes	☐ No	
3.	If you determined that a repair was technically infeasible without a process unit shutdown, did you complete the repair by the end of the next process unit shutdown? *§63.1363(b)(3)(i)(A) as cross referenced by §63.174(d)*	☐ Yes	☐ No	
4.	Use of a control device is necessary if you determined that emissions purged from equipment during immediate leak repair would be greater than emissions resulting from delaying the repair. Did you use a control device to reduce emissions generated during leak repair? *§63.171(c) as cross referenced by § 63.174(d)*	☐ Yes	☐ No	

C.	Recordkeeping and Reporting Requirements			Comments
1.	Do your records include either: • identification numbers of connectors subject to the equipment leak requirements • identification of groups of connectors and the number of connectors in each group *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2.	Have you updated the list of identification numbers in question 1 within 15 days after each monitoring survey to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3.	Do your records include a schedule for monitoring connectors? *§63.1363(g)(2)(i)(B)*	☐ Yes	☐ No	
4.	Do your records include a list of equipment designated as unsafe to monitor, difficult to monitor, or inaccessible and a plan for monitoring or inspecting this equipment? *§63.1363(g)(2)(vi)*	☐ Yes	☐ No	

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Checklist 10: *(cont'd)*
Requirements for connectors in gas/vapor service and in light liquid service

C. Recordkeeping and Reporting Requirements			Comments
5. Do your records include a list of connectors removed from or added to the process if you used credits for removed connectors when calculating the percent leaking connectors? *§63.1363(g)(3)*	☐ Yes	☐ No	
6. Do your records include documentation of the integrity of the weld for any removed connectors if you use the credit for removed connectors? *§ 63.1363(g)(2)(vii)*	☐ Yes	☐ No	
7. If you detected a leak, have you recorded:			
• the instrument and the equipment identification number and the operator name, initials, or identification number	☐ Yes	☐ No	
• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair	☐ Yes	☐ No	
• if post-repair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable	☐ Yes	☐ No	
• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay	☐ Yes	☐ No	
• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired	☐ Yes	☐ No	
• identification of connectors in gas/vapor and light liquid service disturbed since the last monitoring period (unless you use the option for not monitoring open connectors during the monitoring period). Connector identification may be maintained either by list, location, or tagging.	☐ Yes	☐ No	
• date and results of follow-up monitoring for open or disturbed connectors. If identification of disturbed connectors is made by location, then all connectors within the designated location must be monitored	☐ Yes	☐ No	
• copies of periodic reports if records are not maintained on a computerized data base capable of generating summary reports from the records *§63.1363(g)(4)*	☐ Yes	☐ No	
8. Do your records include information and analyses used to determine that a piece of equipment is in heavy liquid service (i.e., not "in light liquid or gas/vapor service" and therefore not subject to equipment leak requirements)? *§63.1363(g)(8)*	☐ Yes	☐ No	
9. Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	

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Checklist 10: ***(cont'd)***
Requirements for connectors in gas/vapor service and in light liquid service

C. Recordkeeping and Reporting Requirements			Comments
10. Did you include the following in your periodic report for each monitoring period during the 6-month reporting period?			
• the number of connectors in gas/vapor or light liquid service for which leaks were detected as described, the percent of connectors leaking, and the total number of connectors monitored	☐ Yes	☐ No	
• the number of connectors in gas/vapor or light liquid service for which leaks were not repaired, identifying the number of those that are determined non-repairable	☐ Yes	☐ No	
• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible	☐ Yes	☐ No	
• if applicable, notification of a change in connector monitoring alternatives for connectors that have been opened or have broken seals *§63.1363(h)(3)(ii)*	☐ Yes	☐ No	
11. Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

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Checklist 11: Requirements for equipment meeting alternative means of emission limitation

Facility Name: _____
Facility Location: _____
Facility TRI ID #: _____
Inspector: _____
Date: _____

Note: A "yes" response to all questions in this checklist means compliance, and a "no" response means noncompliance.

A. Monitoring and Inspection Requirements			Comments
Note: There are three types of alternative standards for equipment leaks: (1) pressure testing of batch or non-batch equipment [§63.178 with changes described in §63.1363(b)(3)(iv)], monitoring of batch equipment for leaks [§63.178 with changes described in §63.1363(b)(3)(iv)], or (3) enclosure of process units so that all emissions from equipment leaks are vented through a closed-vent system to a control device [§63.179]. Question 1 applies for pressure testing, question 2 applies for monitoring batch equipment for leaks, and question 3 applies for enclosure of process units.			
1. Did you perform pressure testing at the following intervals using the procedures in § 63.180(f) for pressure or vacuum loss or § 63.180(g) for a test using liquid?			
• each time the equipment is reconfigured for production of a different product	☐ Yes	☐ No	
• at lest once per year *§ 63.178(b)(1)*	☐ Yes	☐ No	
2. Did you monitor batch equipment for leaks when equipment is in organic HAP use or use with an acceptable surrogate or detectable gas or vapor and at the following intervals:			
• within 30 days of process start-up each time the equipment is reconfigured for production of a new product	☐ Yes	☐ No	
• at the frequencies specified in § 63.178(c)(3)(iii) *§63.178(c)(3)*	☐ Yes	☐ No	
3. For process units enclosed so that all emissions from equipment leaks are vented through a closed system and control device, did you maintain the process unit enclosure under negative pressure at all times? *§63.179*	☐ Yes	☐ No	

B. Leak Repair Requirements			Comments
Note: Questions 1 and 3 apply for pressure testing and questions 2 and 3 apply for monitoring of batch equipment for leaks.			
1. If you detected a leak during pressure testing under the alternative standard, did you do one of the following:	☐ Yes	☐ No	
• repair the leak and retest the equipment before process start-up			
• repair the leak within 30 days after the second pressure test if the equipment failed the second test *§63.178(b)(4)*			

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Checklist 11: *(cont'd)*
Requirements for equipment meeting alternative means of emission limitation

B. Leak Repair Requirements			**Comments**
2. If you detected a leak when monitoring batch processes under the alternative standard, did you repair the leak within no more than 15 days after the leak was detected (unless you met the delay of repair provisions)? *§63.178(c)(4)*	☐ Yes	☐ No	
3. If you delayed repair of leaks under the alternative standard, did all the following circumstances apply :			
• replacement equipment was not available	☐ Yes	☐ No	
• equipment supplies (which were sufficiently stocked) have been depleted	☐ Yes	☐ No	
• the repair is made no later than 10 days after delivery of the replacement equipment *§63.178(d)*	☐ Yes	☐ No	

C. Recordkeeping and Reporting Requirements			**Comments**
Note: Questions 1, 2, 3, 4, 8, and 9 apply for monitoring of batch equipment for leaks, questions 5, 6, 8, and 9 apply for pressure testing, and questions 7, 8, and 9 apply for enclosed vent processes.			
1. Do your records include identification numbers for equipment subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2. Have you updated the list of identification numbers in question 1 within 15 days after each monitoring survey to incorporate any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3 Do your records include a list of equipment added to batch processes since the last monitoring period? *§63.1363(g)(2)(viii)*	☐ Yes	☐ No	
4 Do your records include the monitoring date and results for equipment added to a batch process since the last monitoring period? *§63.1363(g)(4)(viii)*	☐ Yes	☐ No	

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Checklist 11: *(cont'd)*
Requirements for equipment meeting alternative means of emission limitation

C. Recordkeeping and Reporting Requirements			Comments
5. If you show compliance with the equipment leak provisions by pressure testing equipment, have you maintained records of all of the following:			
• identification of each product, or product code, produced during the calendar year	☐ Yes	☐ No	
• the portion of time during the year the equipment is in use in the PAI process. (These records are not required if you do not adjust monitoring frequency by the time in use.)	☐ Yes	☐ No	
• identification of equipment on a plant site plan, in log entries, or by other appropriate methods.	☐ Yes	☐ No	
• the dates of each pressure test, the test pressure, and the pressure drop observed during the test	☐ Yes	☐ No	
• records of any evidence of fluid loss detected by sight, sound, or odor	☐ Yes	☐ No	
• all of the following information if a process equipment train failed two consecutive pressure tests (this information must be kept for 2 years):	☐ Yes	☐ No	
▸ The dates of each pressure test and leak repair attempt			
▸ Repair methods applied in each attempt to repair the leak			
▸ The reason for the delay of repair			
▸ The expected date for delivery of the replacement equipment and the actual date of delivery of the replacement equipment			
▸ The date of successful repair *§63.1363(g)(5)*			
6. Does your periodic report include all of the following information:			
• product process equipment train identification	☐ Yes	☐ No	
• the number of pressure tests conducted	☐ Yes	☐ No	
• the number of pressure tests where the equipment train failed either the retest or two consecutive pressure tests	☐ Yes	☐ No	
• explanation for any delay of repair	☐ Yes	☐ No	
• the results of all monitoring to determine compliance with the standards for inspection of closed-vent systems *§63.1363(h)(3)(iii)*	☐ Yes	☐ No	

Checklist 11: *(cont'd)*
Requirements for equipment meeting alternative means of emission limitation

C.	**Recordkeeping and Reporting Requirements**			**Comments**
7.	If you comply with the alternative means of emission limitation for enclosed-vent processes, have you maintained records of all of the following:			
	• identification of the processes and the organic HAP they handle	☐ Yes	☐ No	
	• a schematic of the process, enclosure, and closed-vent system.	☐ Yes	☐ No	
	• a description of the system used to create a negative pressure in the enclosure to ensure that all emissions are routed to the control device *§63.1363(g)(10)*	☐ Yes	☐ No	
8.	Do your records include identification (by list, location, or other method) of equipment that is in organic HAP service less than 300 hr/yr? *§63.1363(g)(9)*	☐ Yes	☐ No	
9.	Did you include any change in the Notification of Compliance Status report in your periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	

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NOT AVAILABLE

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NOT COMPLETE

What records must I keep?

What do I have to report and when?

You will need to complete several different notifications and reports based on the types of emission points at your facility and the compliance options you choose. The term "reports" is used in this section to include both notifications and reports. Table 8-1 (page 187) shows what reports you must submit and when they are due. Table 8-2 (page 189) gives you details about what should be included in these reports.

How can I change the date my reports are due?

Where do I send my reports?

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TABLE 8-1. Report Due Dates

If you have . . .	And need to submit a(n) . . .	Then submit the report before . . .
An existing affected source	Initial Notification Report [§63.1368(b)]	**10/23/99** *(120 days after the effective date)*
	Application for Approval of Construction or Reconstruction if reconstructing after **6/23/02** *(effective date)* [§§63.1368(c) and 63.5(d)]	
	Precompliance Plan [§63.1368(e)]	**12/23/01** *(6 months before the compliance date)*
	Compliance Extension Request [§§63.1368(n) and 63.1364(a)(2)]	**2/23/02** *(120 days before the compliance date)*
	Notification of continuous monitoring system performance evaluation [§63.1368(d)]	
	Notification of Performance Test and Test Plan [§63.1368(m)]	*60 days before the test*
	Notification of Compliance Status Report [§63.1368(f)]	**11/20/02** *(150 days after the compliance date)*
	Initial Semi-annual Periodic Report [§63.1368(g)] Note: Quarterly reporting is required if you comply with the alternative standard and you have excess emissions [§63.1368(g)(1)(ii)]	**7/20/03** (include information from 11/20/02 - 5/20/03) *(240 days after the Notification of Compliance Status Report)*
	Subsequent Semi-annual Periodic Reports [§63.1368(g)]	**1/20/04** (include information from 5/21/03 - 11/19/03) **7/20/04** (include information from 11/20/03 - 5/20/04) *(60 days after each 6-month period)*
	Startup, Shutdown, and Malfunction Reports [§63.1368(j)]	Semi-annually – can submit with the Periodic reports
	Equipment Leak Reports [§63.1368(j)]	Semi-annually – submit with the Periodic reports
	Reports of Heat Exchange Systems [§63.1368(e)]	Semi-annually – submit with the Periodic reports

If you have . . .	And need to submit a(n) . . .	Then submit the report before . . .
	Reports of Emissions Averaging [§63.1368(k)]	Not clear – should be with each Periodic report
	Notification of Process Change [§63.1368(h)]	Quarterly – submit with the Periodic report or on 4/20 or 10/20
A new affected source	Initial Notification Report	
	Application for Approval of Construction or Reconstruction	
	Precompliance plan	
	Notification of continuous monitoring system performance evaluation	
	Notification of Performance Test and Test Plan	
	Notification of Compliance Status Report	
	Initial Semi-annual Periodic Report	
	Subsequent Semi-annual Periodic Reports	
	Startup, Shutdown, and Malfunction Reports	
	Equipment Leak Reports	
	Reports of Heat Exchange Systems	
	Notification of Process Change	

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TABLE 8-2. Reporting Requirements

If you are submitting a(n) . . .	then submit buy . . .	and include the following information . . .	according to these sections of the rule . . .
Initial Notification Report	120 days after the effective date or 120 days after rule applies to your facility	Name and address of owner or operator. Address (physical location) of the facility. Compliance date. Brief description of nature, size, design, and method of operation. Identify each point of emission for each hazardous air pollutant. Statement of whether you're a major or area source.	§63.1368(b); §63.9(b)
Application for Approval of Construction or Reconstruction	Before construction or reconstruction	Applicant's name and address. Notification of intent to construct or reconstruct. Address (physical location) of the facility. Identify the standard you're subject to. Date that you expect to start construction or reconstruction. Date that you expect to finish construction or reconstruction. Type and amount of HAP you're emitting or expect to emit. For construction, description of proposed nature, size, design, method of operation and emission controls and other information under *§63.5(d)(2)*. For reconstruction, brief description of the facility, parts to be replaced and emission controls and other information under *§63.5(d)(3)*.	§63.1368(c); §63.5(d)

TABLE 8-2. (cont'd)

If you are submitting a(n) . . .	then submit buy . . .	and include the following information . . .	according to these sections of the rule . . .
Precompliance Plan	6 months before compliance data	Requests for approval to use alternative monitoring parameters. Description of your daily or per batch demonstrations to verify that control devices with inlet HAP emissions <1 ton/yr are operating as designed. Data and rationale used to set monitoring parameter levels for conditions other than the peak case. Your Pollution Prevention Demonstration Summary. Data and rationale for engineering assessments. Your Operation and Maintenance Plan for fabric filters that are monitored with bag leak detectors.	§63.1368(e)
Notification of Compliance Status Report	150 days after the compliance date	Results of applicability determinations Results of emission profiles, performance tests, engineering analyses, design evaluations or other calculations used to demonstrate compliance Anticipated periods of planned routine maintenance for control devices used to comply with Option 4A, B, C, or E for storage vessels Provide the following information for each group of processes subject to the equipment leak provisions: [§63.1363(h)(2)(i)] • identification of the group of processes. • approximate number of each equipment type (e.g., valves, pumps) in organic HAP service, excluding equipment in vacuum service. • method of compliance with the standard (e.g., "monthly leak detection and repair" or "equipped with dual mechanical seals"). Provide the following information for each process subject to the equipment leak requirements for pressure testing:	§63.1368(f)

TABLE 8-2. (cont'd)

If you are submitting a(n) . . .	then submit buy . . .	and include the following information . . .	according to these sections of the rule . . .
		[§63.1363(h)(2)(ii)] • products or product codes subject to the equipment leak provisions • planned schedule for pressure testing when equipment is configured for production of products subject to the equipment leak provisions Provide the following information for each process subject to the equipment leak requirements for enclosed-vent process units: [§63.1363(h)(2)(iii)] • process identification • a description of the system used to create a negative pressure in the enclosure and the control device used to comply with the requirements for closed-vent systems and control devices	
Semi-annual Periodic Reports	Semi-annually no later than 60 days after the end of the 6-month reporting period		§63.1368(g)
Startup, Shutdown, and Malfunction Reports			§63.1368(i)
Equipment Leak Reports	Semi-annually--submit with the Periodic reports	• the number of valves in gas/vapor or light liquid service for which leaks were detected, the percent leakers, and the total number of valves monitored • the number of valves in gas/vapor or light liquid service for which leaks were not repaired and the number of those valves that are non-repairable • the number of pumps in light liquid service and agitators in gas/vapor or light liquid service for which leaks were detected,	§63.1363(h)(3)(ii)

TABLE 8-2. (cont'd)

If you are submitting a(n) . . .	then submit buy . . .	and include the following information . . .	according to these sections of the rule . . .
		the percent leakers, and the total number of pumps and agitators monitored • the number of pumps in light liquid service and agitators in gas/vapor or light liquid service for which leaks were not repaired • the number of compressors for which leaks were detected • the number of compressors for which leaks were not repaired • the number of connectors in gas/vapor or light liquid service for which leaks were detected as described in §63.174(a), the percent of connectors leaking, and the total number of connectors monitored • the number of connectors in gas/vapor or light liquid service for which leaks were not repaired, identifying the number of those that are determined non-repairable • the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible. • the results of all monitoring to show compliance with the provisions for: ‣ compressors designated to operate with an instrument reading on less than 500 ppm [§63.164(i)] ‣ pressure relief devices in gas/vapor service operated with an instrument reading of less than 500 ppm [§63.165(a)] ‣ inspections of closed vent systems [§63.172(f)] • if applicable, the initiation of a monthly monitoring program if more than 10 percent of pumps in light liquid service (or three pumps if three is greater than 10 percent) leak or if 2 percent or more valves leak.	

TABLE 8-2. (cont'd)

If you are submitting a(n) . . .	then submit buy . . .	and include the following information . . .	according to these sections of the rule . . .
		• if applicable, notification of a change in connector monitoring alternatives for connectors that have been opened or have broken seals.	
		You must submit the following information in your periodic reports for valves in gas/vapor service and light liquid service: • valve reassignments occurring during the reporting period • results of the semiannual overall performance calculation	§63.1363(e)(5)(vi)
		If you elect to conduct pressure tests according to §63.178(b), your Periodic report must include all of the following information: • product process equipment train identification • the number of pressure tests conducted • the number of pressure tests where the equipment train failed either the retest or two consecutive pressure tests • explanation for any delay of repair • the results of all monitoring to determine compliance with the standards for inspection of closed-vent systems	§63.1363(h)(3)(iii)
		If any of the information you submitted in the Notification of Compliance Status report changes, you must describe the change in the next Periodic report.	§63.1363(h)(3)(iv)
Reports of Emissions Averaging			§63.1368(k)
Notification of Process Change			§63.1368(h)

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Who administers this regulation?

Your State or local agency for air pollution control, **or** your EPA Regional Office, will regulate you. If your plant is in Indian Country, and your eligible Tribe **or** your EPA Regional Office will regulate you. You may be regulated by one or more agencies depending on whether they've been granted delegation of this rule.

> **Definition.** An *eligible Tribe* means "a Tribe that has been determined by the EPA to meet criteria for being treated in the same manner as a State, pursuant to the regulations implementing section 301(d)(2) of the Act."

Not all States have been granted delegation, or, if they have been granted delegation, they may not have been delegated all portions of the rule. Our EPA Regional Offices may also have retained certain rights even after delegation (for example, you may continue to have dual reporting requirements as explained in **Chapter 8)**. You should check with your EPA Regional Office or State for the latest information.

Do I need a title V permit?

You'll need a title V permit if you're subject to the Pesticide Active Ingredient NESHAP since, under title V, you must get a permit if your facility is a *major source*. The Pesticide Active Ingredient NESHAP applies to major sources.

To determine if your facility is a major source, you'll need to calculate your HAP emissions from your entire facility, not just your foam operations. If you don't have federally enforceable limits in a State permit, you must calculate your emissions by determining your potential emissions. If you need help determining if your facility is a major source or what your potential emissions are, see the definitions in the Operating Permits Rule §70.2, **or** visit our title V policy and guidance page at *www.epa.gov/ttn/oarpg/t5main.html*.

How do I change my permit to include this rule?

If you've already been issued a final title V permit and you have three or more years left on your permit, your permitting authority will reopen your permit within 18 months of the publication date of the final rule or final amendments. If you have less than three years left on your permit, update your permit during your renewal period. If your permit hasn't been issued in final form, update your application or draft permit.

To summarize, your options are as follows:

If a new rule is effective[1,2] and you have . . .	**Then . . .**
not been issued a final title V permit	update your permit application or draft permit
less than three years left on your permit	update your title V permit during renewal
three or more years left on your permit	your permitting authority will reopen your permit within 18 months after the publication date of the final rule or final amendments

[1] The rule's effective date is the date the final rule is published in the *Federal Register* (which is **6/23/99** for this rule).

[2] This also applies if existing rules are modified and final amendments are published in the *Federal Register.*

Title V permitting rules may change after the publication of this document. Keep abreast of any changes by checking the *Federal Register* **or** visit our title V websites at *www.epa.gov/ttn/oarpg/t5main.html* and *www.epa.gov/oar/oaqps/permits/*.

What portions of the General Provisions apply?

The General Provisions were published in the *Federal Register* on March 16, 1994 (Volume 59, page 12408) and apply to all NESHAPs, including the Pesticide Active Ingredient NESHAP.

This means that when you became subject to this rule, you also became subject to the General Provisions. Some sections in this rule override the General Provisions. You'll find that Table 1 of the final rule shows you which sections of the General Provisions apply to this rule and which don't. General Provision requirements, except for notification and reporting are not addressed in this document.

Whom can I ask for help?

You can go to a lot of places for help, including all of the following:

- your State, local or Tribal agency for air pollution control
- your State's Small Business Assistance Program (SBAP)
- local, regional, or National Trade Associations
- your EPA Regional Office

State and local contacts can change frequently. To get the most current contact information, go to the STAPPA/ALAPCO website *(www.4cleanair.org)* and then the membership directory. The directory will give you the latest contact points for major air programs (that is, emission standards for toxic air pollutants, ozone, etc.) at the State and local level.

If you have questions about this rule, you should contact your State, local or Tribal agency before calling the EPA. Their rules may be more stringent than Federal requirements.

Many States have a ***Small Business Assistance Program.*** If you're a small business and don't know who your SBAP is, you can call EPA's Control Technology Center Hotline at (919) 541-0800 or visit EPA's SBAP at *www.epa.gov/oar/oaqps/sbap* for help.

Contact numbers for ***EPA's Regional Air Division Offices*** may also change frequently. To obtain the most up-to-date information, you may want to visit your Regional Office's website. **Table 10.1** lists each of our Regional Offices, the Air Toxics Division Phone and Address, and the Regions Internet home page. Make all written inquiries to the attention of "NESHAP (insert rule name) Contact."

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Can I get more information on the Web?

You can get a wealth of information on the World Wide Web (WWW). Some of the more popular ways to get information on this rule include:

- EPA's **Unified Air Toxics Website** (*www.epa.gov/ttn/uatw*)

  You can download copies of preambles, regulations, background information documents, policy memos, and other guidance materials here. All rule pages can be found under the Rules and Implementation page. Pesticide active ingredient can be found under *www.epa.gov/ttn/uatw/pest/pestpg.html.*

- EPA's **Applicability Determination Index** (ADI)
  (http://es.epa.gov/oeca/eptdd/adi.html)
  EPA's Office of Enforcement and Compliance Assurance (OECA) posts memos dealing with applicability and compliance at this site.

- OECA **Compliance Assistance Centers** *(http://www.epa.gov/epahome/business.htm)*
  You can find information on compliance with federal regulations at this site. There are centers for printing, automotive services and repair, agriculture, and metal finishing industries. We plan to add centers for the chemical industry, printed wiring board manufacture, transportation, and local governments.

- **STAPPA/ALAPCO** home page *(http://www.4cleanair.org)*
  STAPPA/ALAPCO is the State and Territorial Air Pollution Program Administrators (STAPPA) and Local Air pollution Control Officials (ALAPCO) organization. STAPPA/ALAPCO has members representing each State and local agency for air pollution control.

  You can get air pollution information at this site, including a document entitled *"Communicating Air Quality: A Compendium of Resources."* It lists educational materials on air pollution that State and local agencies have created.

TABLE 10-1. EPA Regional Air Division Offices

EPA Regional Office - MACT Implementation Contact Division Information*

EPA Region	States Covered	Division Phone and Address	Division Phone / RO Home Page
Region I	CT, ME, MA, NH, RI & VT	Office of Environmental Stewardship (SEA) or Office of Ecosystem Protection (CAP) 1 Congress Street, Suite 1100 Boston, MA 02114-2023 Attention: NESHAP (MACT) Contact	(617) 918-1510 www.epa.gov/region1
Region II	NJ, NY, Puerto Rico & Virgin Islands	Division of Environmental Planning and Protection 290 Broadway 21st Floor New York, NY 10007-1866	(212) 637-3735 www.epa.gov/region2
Region III	DE, MD, PA, VA, WV & DC	Air Protection Division, 3AP111 1650 Arch Street Philadelphia, PA 19103-2029	(215) 814-2056 www.epa.gov/region3
Region IV	AL, FL, GA, KY, MS, NC, SC & TN	Air, Pesticides and Toxics Management Division Atlanta Federal Center 61 Forsyth Street Atlanta, GA 30303-3104	(404) 562-9077 www.epa.gov/region4
Region V	IL, IN, MI, WI, MN & OH	Air and Radiation Division 77 West Jackson Blvd. Chicago, IL 60604-3507	(312) 353-2212 www.epa.gov/region5
Region VI	AR, LA, NM, OK & TX	Multimedia Planning and Permitting Division (6PD) or Compliance Assurance & Enforcement Division (6EN) 1445 Ross Avenue Dallas, TX 75202-2733	(214) 665-7250/ (214) 665-7220 www.epa.gov/region6
Region VII	IA, KS, MO & NE	Air, RCRA and Toxics Division 901 North 5th Street Kansas City, KS 66101	(913) 551-7020 www.epa.gov/region7
Region VIII	CO, MT, ND, SD, UT & WY	Office of Enforcement, Compliance and Environmental Justice (ECEJ) or Office of Partnerships and Regulatory Assistance (OPRA) 999 18th Street 1 Denver Place, Suite 500 Denver, CO 80202-2405	(303) 312-7028/ (303) 312-6294 www.epa.gov/region8
Region IX	AZ, CA, HI, NV, American Samoa, & Guam	Air Division 75 Hawthorne Street San Francisco, CA 94105	(415) 744-1219 www.epa.gov/region9
Region X	AK, ID, WA & OR	Office of Air Quality 1200 Sixth Avenue Seattle, WA 98101	(206) 553-1505 www.epa.gov/region10

* Information subject to change without notice. For the latest information, please visit the Regional Office Website.

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Is there a list of commonly asked questions?

For a list of questions and answers about the final rule, you'll find EPA's *"National Emission Standards for Hazardous Air Pollutants (NESHAP) for Pesticide Active Ingredient Production: Summary of Public Comments and Responses, May, 1999* (EPA-453/R-98-011) useful. You can download the document by going to our UATW Pesticide Active Ingredient page at *www.epa.gov/ttn/uatw/pest/pestpg.html.*

How many plants may need to meet emission limits?

According to information we collected in 1995, we estimated that approximately 78 pesticide active ingredient production plants might be affected by this rule.

You will find a list of the facilities that may be affected by the rule on the following page. We've included the list as a reference for you, **not** as an official or complete list of regulated plants.

EPA's "*Enabling Document: Source Identification Procedures for Sources Subject to Regulations Under Section 112(d) of the Clean Air Act as Amended in 1990*", September 20, 1996 (otherwise known as the "***Cookbook***"), can help you identify the steps you can take to locate more sources.

You can download the cookbook by going to *www.epa.gov/ttn/uatw/eparules.html*, scroll down until you see "MACT Implementation Strategy." The cookbook is in Appendix G of this document.

Are plants in Indian country regulated by the State?

Generally, State rules aren't enforceable in Indian country. When we delegate authority to States under section 112(d), the authority to regulate doesn't extend to Indian country unless the delegation agreement says so.

We encourage tribes to develop the capacity to administer section 112(d) programs and to request delegation. If we don't delegate the authority to carry out section 112(d) rules to an eligible Tribe, the EPA Regional Office will be the regulatory authority.

How much HAP emissions will the rule reduce?

We estimate that full implementation of the rule will reduce HAP emissions by about 2,760 tons annually.

SUBSET OF MAJOR SOURCES INCLUDED IN THE PESTICIDE ACTIVE INGREDIENT MANUFACTURING INDUSTRY

[excerpted from Proposed BPD]

Below is a list of potential sources that manufacture pesticide active ingredients and which may be subject to this subpart. This list should not be considered all inclusive as sources who are not on this list may also be subject to the NESHAP. In addition, sources identified in list may no longer be subject to the NESHAP.

Company name	City	State
Ciba Geigy	McIntosh	AL
Du Pont	Axis	AL
Zeneca Inc.	Bucks	AL
Arkansas Eastman Division	Magness	AR
Ethyl Corporation	Magnolia	AR
Great Lakes Chemical Corp.	El Dorado	AR
Dow Chemical	Pittsburg	CA
Zeneca Inc.	Richmond	CA
Uniroyal Chemical	Naugatuck	CT
Monsanto Co.	Muscatine	IA
Abbott Labs	North Chicago	IL
Lonza Inc.	Mapleton	IL
Monsanto Co.	Sauget	IL
Morton International	Ringwood	IL
Riverdale Chemical Co.	Chicago Heights	IL
Vulcan Chemicals	Wichita	KS
Elf Atochem N.A., Inc.	Carrollton	KY
Ciba Geigy	St. Gabriel	LA
Uniroyal	Geismar	LA
FMC Corp. Ag. Chem. Group	Baltimore	MD
Anderson Development Company	Adrian	MI
Dow Chemical	Midland	MI
Elf Atochem N.A., Inc.	Riverview	MI

Company name	City	State
American Cynamid Co.	Hannibal	MO
Buckman Laboratories Inc.	Cadet	MO
Farmland Industries	St. Joseph	MO
FMC Corporation	Bessemer City	NC
Occidental Chemical	Castle Hayne	NC
Zeneca Inc.	Perry	OH
Du Pont	Manati	PR
Eastman Kodak-Tennessee Eastman	Kingsport	TN
Great Lakes Chemical Corp.	Newport	TN
Olin Corp.	Charleston	TN
Zeneca Inc.	Mt. Pleasant	TN
Dow Chemical	Freeport	TX
Du Pont	LaPorte	TX
ISK Biotech Corp.	Houston	TX
Sandoz Agro Inc.	Beaumont	TX
Schenectady International	Freeport	TX
Zeneca Inc.	Pasadena	TX
Cytec Industries	Willow Island	WV
Du Pont	Belle	WV
PPG Industries	New Martinsville	WV
Rhone-Poulenc Ag. Co.	Institute	WV
Union Carbide	South Charleston	WV

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Estimated National HAP Emission Reductions

[Pending]

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Appendix A- Subpart MMM, final rule

(Copy of rule can be found at www.epa.gov/ttn/uatw/pest/pestpg.html)

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federal register

Wednesday
June 23, 1999

Part II

Environmental Protection Agency

40 CFR Parts 9 and 63

National Emission Standards for Hazardous Air Pollutants: Pesticide Active Ingredient Production; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 9 and 63

[AD–FRL–6345–5]

RIN–2060–AE83

National Emission Standards for Hazardous Air Pollutants: Pesticide Active Ingredient Production

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action promulgates national emission standards for hazardous air pollutants (NESHAP) for the pesticide active ingredient (PAI) production source category under section 112 of the Clean Air Act as amended (CAA or Act). The intent of the standards is to reduce emissions of hazardous air pollutants (HAP) from existing and new facilities that manufacture organic PAI used in herbicides, insecticides, and fungicides. The standards protect human health and the environment by reducing HAP emissions to the level corresponding to the maximum achievable control technology (MACT) through the use of pollution prevention measures and control strategies. The major HAP emitted by facilities covered by this rule include toluene, methanol, methyl chloride, and hydrogen chloride (HCl). All of these pollutants can cause reversible or irreversible toxic effects following exposure. The rule is estimated to reduce total HAP emissions from existing facilities by 2,500 megagrams per year (Mg/yr) (2,755 tons per year (tons/yr)), a reduction of 65 percent from the baseline emission level. Because many of these pollutants are also volatile organic compounds (VOC), which are precursors to ambient ozone, the rule will aid in the reduction of tropospheric ozone. The emission reductions achieved by these standards, when combined with the emission reductions achieved by other similar standards, will achieve the primary goal of the CAA, which is to "enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population."

The July 16, 1992 source category list included an agricultural chemicals industry group that contained 10 source categories. Today's final rule groups these 10 agricultural chemicals source categories into one source category, renames the source category, and adds additional chemical production processes to the source category.

EFFECTIVE DATE: June 23, 1999.

ADDRESSES: *Docket.* Docket No. A–95–20, containing supporting information considered by the EPA in developing the promulgated standards, is available for public inspection and copying between 8:30 a.m. and 5:30 p.m., Monday through Friday, at EPA's Air and Radiation Docket and Information Center, Waterside Mall, Room 1500, 1st Floor, 401 M Street SW, Washington, DC 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: For information concerning this final rule, contact Mr. Lalit Banker at (919) 541–5420, Organic Chemicals Group, Emission Standards Division (MD–13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. For information concerning applicability and rule determinations, contact your State or local representative or the appropriate EPA regional representatives. For a list of regional representatives, see the **SUPPLEMENTARY INFORMATION** section.

SUPPLEMENTARY INFORMATION: *Regulated entities.* Entities potentially regulated are those which produce PAI's and integral intermediates that are used in herbicides, insecticides, or fungicides and are located at facilities that are major sources as defined in section 112 of the CAA. Regulated categories and entities include:

Category	NAICS codes	SIC codes	Examples of potentially regulated entities
Industry	Typically, 325199 and 32532.	Typically, 2869 and 2879.	• Producers of pesticide active ingredients that contain organic compounds and are used in herbicides, insecticides, or fungicides. • Producers of any integral intermediate used in the onsite production of an active ingredient used in an herbicide, insecticide, or fungicide.

The foregoing table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be affected. To determine whether your facility, company, business organization, etc., is regulated by this action, you should carefully examine the applicability criteria in § 63.1360 of the rule. If you have questions regarding the applicability of this action to a particular entity, consult the person(s) listed in the **FOR FURTHER INFORMATION CONTACT** section.

Regional Representatives. The EPA regional representatives are:

Region I

NESHAP (MACT) Coordinator, U.S. EPA Region I, John F. Kennedy Federal Building, One Congress Street, Boston, MA 02114–2023, (617) 918–1111

Region II

Umesh Dholakia, U.S. EPA Region II, 290 Broadway Street, New York, NY 10007–1866, (212) 637–4023 (Umesh)

Region III

Bernard Turlinski, U.S. EPA Region III, 841 Chestnut Building, Philadelphia, PA 19107, (215) 566–2150

Region IV

Lee Page, U.S. EPA Region IV, Atlanta Federal Center, 61 Forsyth Street SW, Atlanta, GA 30303–3104, (404) 562–9131

Region V

Bruce Varner, U.S. EPA Region V, 77 West Jackson Boulevard, Chicago, IL 60604–3507, (312) 886–6793

Region VI

Robert Todd, U.S. EPA Region VI, First Interstate Bank Tower @ Fountain Place, 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202–2733, (214) 665–2156

Region VII

Richard Tripp, U.S. EPA Region VII, Air Toxics Coordinator, 726 Minnesota Avenue, Kansas City, KS 66101, (913) 551–7566

Region VIII

Ann Marie Patrie, U.S. EPA Region VIII, Air Toxics Coordinator, 999 18th Street, Suite 500, Denver, CO 80202–2466, (303) 312–6524

Region IX

Nahid Zoueshtiagh, U.S. EPA Region IX, Air Division-6, 75 Hawthorne Street, San Francisco, CA 94105, (415) 744–1261

Region X

Andrea Wullenweber, U.S. EPA Region X, Air Toxics Coordinator, 1200 Sixth Avenue, Seattle, WA 98101, (206) 553-8760

Background Documentation. The following is a listing of background documents pertaining to this rulemaking. The complete title, EPA publication number, publication date, docket item number, and the abbreviated descriptive title used to refer to the document throughout this notice are included.

(1) National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Pesticide Active Ingredient Production Industry: Summary of Public Comments and Responses. EPA-453/R-98-011. April 1999. Docket item No. IV-B-1. Response to Comment Document for Promulgated Standards.

(2) Pesticide Active Ingredient NESHAP—Basis and Purpose document. July 1997. Docket item No. III-B-1. Basis and Purpose Document.

(3) Hazardous Air Pollutant Emissions From the Pesticide Active Ingredient Production Industry—Supplementary Information Document for Proposed Standards. July 1997. Docket item No. II-B-21. Supplementary Information Document.

The response to comment document for the promulgated standards contains: (1) a summary of all the public comments made on the proposed rule and the Administrator's response to the comments; and (2) a summary of the changes made to the rule since proposal. The basis and purpose document contains much of the rationale for the standards. The supplementary information document contains a compilation of technical memoranda.

Electronic Versions of Documents. Electronic versions of documents from the Office of Air and Radiation (OAR) are available for downloading from EPA's OAR Technology Transfer Network Web site (TTNWeb). The TTNWeb is a collection of related Web sites containing information about many areas of air pollution science, technology, regulation, measurement, and prevention. The TTNWeb is directly accessible from the Internet via the World Wide Web at the following address: "http://www.epa.gov/ttn." This preamble and rule are located under the OAR Policy and Guidance Information Web site, "http://www.epa.gov/ttn/oarpg/t3main.html," under the **Federal Register** Notices section. The background documents are located at the same web site, under the Reports section. If more information on the TTNWeb is needed, contact the Systems Operator at (919) 541-5384.

Judicial review. Under section 307(b)(1) of the CAA, judicial review of NESHAP is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of today's publication of this final rule. Under section 307(b)(2) of the CAA, the requirements that are the subject of today's final rule may not be challenged later in civil or criminal proceedings brought by the EPA to enforce these requirements.

The information presented in this preamble is organized as follows:

I. List of Source Categories
A. Initial Source Categories
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I. List of Source Categories

Section 112 of the CAA requires that EPA evaluate and control emissions of HAP. The control of HAP is achieved through promulgation of emission standards under section 112 (d) and (f) and work practice and equipment standards under section 112(h) for categories of sources that emit HAP. On July 16, 1992, EPA published an initial list of major and area source categories to be regulated (57 FR 31576). Today's final rule adds additional chemical production processes to the agricultural chemicals industry group, groups the initial and additional source categories into a single source category, and renames the source category.

A. Initial Source Categories

Included on the initial source category list were major sources emitting HAP from 10 categories of agricultural chemicals production; in addition to being an agricultural chemical, each of these compounds is also a PAI. One source category on the initial source category list, butadiene furfural cotrimer (R-11) production, was moved from the polymers and resins industry group to this industry group on June 4, 1996 (61 FR 28197). The EPA decided it was appropriate to move butadiene furfural cotrimer (R-11) to the agricultural chemicals industry group because it is an insecticide commonly used for delousing cows.

B. Addition of Other Pesticide Active Ingredients

In developing the rule, the EPA identified a number of other PAI production operations that were not on the initial source category list. It was determined that production of these compounds is similar to the production of the compounds in the 11 initial agricultural chemical source categories. Production of these other PAI's are being added to the source category list under section 112(c) of the CAA based on information obtained during the gathering of HAP emission data for this proposed rule. From this information, it

was determined that: (1) there are similarities in process operations, emission characteristics, control device applicability and costs, and opportunities for pollution prevention of these PAI's with the listed agricultural chemicals; and (2) the production of these PAI's occurs at facilities that are major sources. Like the initial agricultural chemicals, these PAI's are those that are used in herbicides, insecticides, and fungicides that are registered as end-use products under section 3 of Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

C. Single Source Category

In developing the proposed rule, EPA decided not to set MACT for each individual PAI chemical but, rather, to aggregate all PAI's together under the same source category. The PAI's that EPA proposes to include in this source category are all organic PAI's that are used to produce insecticide, herbicide, or fungicide products. Data gathered from the PAI production industry indicate that the process equipment, emission characteristics, and applicable control technologies are sufficiently similar for the broad group of sources that EPA intends to regulate under a single set of standards. There are no significant differences in the types of control technologies applicable to controlling emissions from the various PAI processes. Common HAP control technologies are applicable to the production operations at all of the facilities. Based on these factors, EPA concluded that determining MACT for each individual PAI is not warranted.

The EPA believes it is technically feasible to regulate emissions from a variety of PAI processes by a single set of emission standards. Similar to the Hazardous Organic NESHAP (HON) for the Synthetic Organic Chemical Manufacturing Industry (SOCMI), separate requirements are proposed for process vents, storage vessels, equipment leaks, and wastewater HAP emission points (often referred to as planks). The set of standards also establishes different control requirements based on distinctions in the size of the emission points. Variability in the characteristics of the production processes for each individual PAI chemical may affect the quantity of HAP emissions. This variability has been addressed by incorporating cutoffs for uncontrolled emissions in the standards for individual planks.

Several other reasons support the development of a single set of emission standards for a group of PAI processes. Many of these PAI's are only produced at a single facility or by a single company. In addition, data indicate that many of the PAI processes that EPA is proposing to regulate by this set of standards are collocated within individual facilities; at some facilities, multiple PAI's are also produced in the same equipment (i.e., flexible operating equipment). Facilities with collocated PAI manufacturing could more easily comply with a single set of emission standards than with individual standards for each of the collocated processes. Several industry representatives also expressed interest in a generic regulation that would specify consistent requirements for a wide range of processes.

Another justification for developing a single set of emission standards to regulate production of a variety of PAI's is that it is more efficient and less costly for EPA to develop a single standard than to develop separate standards for several individually listed source categories which have similar emission characteristics and applicable control technologies. A single set of standards for PAI manufacturing will ensure that process equipment with comparable HAP emissions and control technologies are subject to consistent emission control requirements. In addition, compliance and enforcement activities would be more efficient and less costly.

D. Change of the Source Category Name

Under today's final rule, EPA is revising the source category list published under section 112(c) of the CAA to add a source category called "Pesticide Active Ingredient Production" and to subsume the 11 initial, separate source categories into that category, as well as to include other identified chemical production processes which are major sources of HAP. All 11 agricultural chemicals on the initial source category list are PAI's; all of the other chemicals identified during data gathering that have been added to the list are also PAI's. Because these other PAI's have been added to the source category list and because they have been grouped with the initial 11 agricultural chemicals, which are also PAI's, the EPA decided that it is appropriate to change the title of this NESHAP source category. Effective by this notice, EPA is changing the title of the source category to "pesticide active ingredient production." This change is appropriate to avoid confusion regarding the definition of the source category and to aid in distinguishing the types of air emission sources addressed by this source category.

II. Background

A. Summary of Considerations Made in Developing This Rule

The CAA was created in part "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population" (CAA section 101(b)(1)). Section 112(b) of the CAA lists 189 HAP believed to cause adverse health or environmental effects. (Through rulemaking, EPA subsequently delisted caprolactam). Section 112(d) of the CAA requires that emission standards be promulgated for all categories and subcategories of major sources of these HAP and for many smaller "area" sources listed for regulation under section 112(c) in accordance with the schedules listed under section 112(c). Major sources are defined as those that emit or have the potential to emit at least 10 tons/yr of any single HAP or 25 tons/yr of any combination of HAP.

On July 16, 1992 (57 FR 31576), EPA published the initial list of categories of sources slated for regulation. As noted above, this list included 10 categories of Agricultural Chemicals Production; with today's final rule, these source categories are combined into a single category called Pesticide Active Ingredient Production, and additional PAI processes are added to the source category. The statute requires emissions standards for the listed source categories to be promulgated between November 1992 and November 2000. On December 3, 1993, the EPA published a schedule for promulgating these standards (58 FR 83841).

In the CAA, Congress specified that each standard for major sources must require the maximum reduction in emissions of HAP that EPA determines is achievable considering cost, health and environmental impacts, and energy requirements. In essence, these MACT standards would ensure that all major sources of air toxic emissions achieve the level of control already being achieved by the better controlled and lower emitting sources in each category. This approach provides assurance to citizens that each major source of toxic air pollution will be required to effectively control its emissions.

Available emissions data show that pollutants that are listed in section 112(b)(1) of the CAA and are emitted in substantial amounts by the PAI production source category include toluene, methanol, methyl chloride, and HCl. The PAI production source category also emits small amounts of other listed pollutants including benzene, benzyl chloride, 1,3-butadiene,

carbon tetrachloride, chloroform, ethylbenzene, ethyl chloride, ethylene dichloride, hexachlorobenzene, hexachlorocyclopentadiene, hexachloro ethane, hexane, methylene chloride, tetrachloroethylene, trichlorobenzene, trichloroethylene, xylenes, acetonitrile, Captan®, formaldehyde, glycol ethers, hydroquinone, methyl ethyl ketone, methyl isobutyl ketone, methyl isocyanate, napthalene, phosgene, chlorine, and hydrogen cyanide. Some of these pollutants have been classified as known, probable, or possible human carcinogens when inhaled, and all can cause reversible and irreversible toxic effects following sufficient exposure. These effects include respiratory and skin irritation, neurological disorders (e.g., dizziness, headache, and narcosis), effects upon the eye (including blindness), damage to organs (e.g., liver, kidney, and testes), and in extreme cases, death. Emissions of these pollutants will be reduced by implementation of today's final rule.

The list of HAP in section 112(b) of the CAA includes 22 HAP compounds (or classes of compounds) that have been reported to be possible endocrine disruptors. Many of these 22 HAP are PAI's, or are used in the production of PAI's, and, thus, could possibly be emitted from PAI manufacturing plants. In a survey of 20 plants producing PAI's, EPA found only one of these 22 HAP in the actual emissions of these plants. The quantity of this one potential endocrine disruptor was very low relative to the total HAP emissions reported at the 20 surveyed plants.

Based on published chemical property data, the vapor pressures of the possible endocrine disruptors tend to be low relative to the solvents and raw materials used in the PAI manufacturing processes (the lower the vapor pressure, the less material that will volatilize). In addition, based on a PAI industry buyer's guide, the possible endocrine disruptors that are also PAI's are each produced by only one or a small number of companies. As a result, the HAP that are possible endocrine disruptors are likely emitted in small quantities, if at all, relative to the HAP listed above. The EPA is implementing a program under the Federal Food Drug and Cosmetic Act and Safe Drinking Water Act to screen pesticides and other chemicals for their potential to disrupt the endocrine system of humans and wildlife. The EPA will assess the risk to humans and wildlife of chemicals identified in this program as endocrine disruptors and take appropriate risk management action. The EPA's risk management strategy could include the development of risk based emission standards under the CAA.

The alternatives considered in the development of this regulation, including those alternatives selected as standards for new and existing sources, are based on process and emissions data received from 20 of the estimated 78 existing facilities that are subject to today's final rule. Regulatory alternatives more stringent than the MACT floor (the minimum control level required by the CAA) were selected when they were judged to be reasonable, considering cost, non-air quality health and environmental impacts, and energy requirements.

Included in today's final rule are methods for determining initial compliance as well as monitoring, recordkeeping, and reporting requirements. All of these components are necessary to ensure that affected sources will comply with the standards both initially and over time. However, the EPA has made every effort to simplify the requirements in the rule. The EPA has also attempted to maintain consistency with existing regulations by either incorporating text from existing regulations or referencing the applicable sections.

Representatives from other interested EPA offices and programs, State environmental agency personnel, and industry participated in the regulatory development process as MACT partnership members. The partnership members were given opportunities to review and comment on the regulation prior to proposal. Industry, regulatory authorities, environ mental groups, and other interested parties provided comment on drafts of the proposed standards and provided additional information during the public comment period.

B. Regulatory Background

Today's final rule implements section 112(d) of the CAA, which requires the Administrator to regulate emissions of HAP listed in section 112(b) of the CAA. The intent of this rule is to protect the public health and the environment by requiring new and existing major sources to reduce generation of emissions by using pollution prevention strategies or to control emissions to the level achievable by the MACT.

In 1994, EPA promulgated National Emission Standards for Hazardous Air Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks (59 FR 19587). Processes producing Captafol®, Captan®, Chlorothalonil, Dacthal, and Tordon™ acid that use butadiene, carbon tetrachloride, methylene chloride, or ethylene dichloride as a reactant or process solvent, are subject to the Negotiated Regulation for Equipment Leaks. Today's final rule requires control of leaking components that are currently not subject to the Negotiated Regulation for Equipment Leaks, but that contain and/or transport HAP and are associated with processes in this source category. Today's final rule also allows sources subject to the Negotiated Regulation to comply with the leak detection and repair (LDAR) provisions of this rule.

III. Authority for NESHAP Decision Process

A. Source of Authority for NESHAP Development

Section 112 of the CAA gives the EPA the authority to establish national standards to reduce air emissions from sources that emit one or more HAP. Section 112(b) contains a list of HAP to be regulated by NESHAP. Section 112(c) directs the Agency to use this pollutant list to develop and publish a list of source categories for which NESHAP will be developed; this list was published in the **Federal Register** on July 16, 1992 (57 FR 31576). The Agency must list all known categories and subcategories of "major sources" that emit one or more of the listed HAP. A major source is defined in section 112(a) as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit in the aggregate, considering controls, 10 tons/yr or more of any one HAP or 25 tons/yr or more of any combination of HAP.

Under section 112(c)(1) of the CAA, the Administrator has the authority to establish additional source categories as appropriate. Ten (revised to 11) categories of agricultural chemicals were included on the initial list. Because the processes, HAP emissions, control technologies, and control costs for these 11 agricultural chemicals are similar to the processes, HAP emissions, control technologies, and control costs for other PAI's, the Administrator included other PAI's on the source category list and grouped the agricultural chemicals and the PAI's together into one source category.

B. Criteria for Development of NESHAP

The NESHAP are to be developed to control HAP emissions from both new and existing sources according to the statutory directives set out in section 112(d) of the CAA. The statute requires the standards to reflect the maximum degree of reduction in emissions of HAP

that is achievable for new or existing sources. This control level is based on the MACT. The selection of MACT must reflect consideration of the cost of achieving the emission reduction, any non-air quality health and environmental impacts, and energy requirements for control levels more stringent than the floor (described below).

The MACT floor is the least stringent level for MACT standards. For new sources, the standards for a source category or subcategory "shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator" (CAA section 112(d)(3)). Existing source standards can be no less stringent than the average emission limitation achieved by the best performing 12 percent of the existing sources for categories and subcategories with 30 or more sources, or the average emission limitation achieved by the best performing 5 sources for categories or subcate gories with fewer than 30 sources (CAA section 112(d)(3)). The average emission limitation achieved by the best performing sources is termed the "MACT floor," and the "average" is based on a measure of central tendency such as the arithmetic mean, median, or mode.

In establishing the floors for this rulemaking, EPA designed its information collection approach to reduce the paperwork burden on the industry. Rather than collect detailed information from all 78 existing sources, EPA narrowed its detailed collection request. Through literature reviews, State contacts, and plant visits, EPA identified companies which appeared to have the best controlled plants and sent data collection requests only to those companies. In identifying those companies, EPA also considered the need to include a variety of process and product types in the survey. Data for the PAI production industry were collected from 20 facilities that are major sources. In addition, many of those facilities achieve high emissions reductions, produce a variety of PAI's, and use a variety of production processes. As the standards for existing sources are based on the best-performing 12 percent of sources, the number of best-performing sources for this source category is nine facilities (i.e., 12 percent of 78 facilities). The best-performing nine facilities are included in the 20 facilities surveyed.

After the nine best performing sources in the source category were identified, the "average emission limitation achieved" was determined for each of the four types of emission points at these sources. The arithmetic mean was evaluated first for each type of emission point. If this value corresponded with the level of control achieved by a known technology, it was selected as the MACT floor. If the value did not correspond with the level of control achieved by a known technology, the median was evaluated. In all cases where the median was evaluated, it was selected as the MACT floor because it either corresponded with the level of control achieved by a known technology, or it was no control.

IV. Summary of Promulgated Standards

This section describes the source category and pollutants that are regulated, defines an affected source, and summarizes the final standards for each type of emission point. A pollution prevention alternative is also summarized in this section.

A. Source Categories to be Regulated

The final standards regulate HAP emissions from facilities that are major sources and produce PAI's for use in insecticide, herbicide, or fungicide products. These standards apply to existing sources as well as new sources. The final standards for existing and new sources are summarized in Table 1.

TABLE 1.—STANDARDS FOR NEW AND EXISTING PAI SOURCES

Emission source	Applicability	Requirement
Process vents	Existing:	
	Processes having uncontrolled organic HAP emissions ≥0.15 Mg/yr.	90% for organic HAP per process or to outlet concentration of ≤20 ppmv TOC.
	Processes having uncontrolled HCl and chlorine emissions ≥6.8 Mg/yr.	94% for HCl and chlorine per process or to outlet HCl and chlorine concentration of ≤20 ppmv.
	Individual process vents meeting flow and mass emissions criteria that have gaseous organic HAP emissions controlled to less than 90% on or after November 10, 1997.	98% gaseous organic HAP control per vent or ≤20 ppmv TOC outlet limit.
	New:	
	Processes having uncontrolled organic HAP emissions ≥0.15 Mg/yr.	98% for organic HAP per process or ≤20 ppmv TOC.
	Processes having uncontrolled HCl and chlorine emissions ≥6.8 Mg/yr and <191 Mg/yr.	94% for HCl and chlorine per process or to outlet concentration of ≤20 ppmv HCl and chlorine.
	Processes having uncontrolled HCl and chlorine emissions ≥191 Mg/yr.	99% for HCl and chlorine per process or to outlet concentration of ≤20 ppmv HCl and chlorine.
Storage vessels	Existing: ≥75 m^3 capacity and vapor pressure ≥3.45 kPa.	Install a floating roof, reduce HAP by 95% per vessel, or to outlet concentration of ≤20 ppmv TOC.
	New: ≥38 m^3 capacity and vapor pressure ≥16.5 kPa ...	Same as for existing sources.
	≥75 m^3 capacity and vapor pressure ≥3.45 kPa	
Wastewater*	Existing: Process wastewater with ≥10,000 ppmw Table 9 compounds at any flowrate or ≥1,000 ppmw Table 9 compounds at ≥10 L/min, and maintenance wastewater with HAP load ≥5.3 Mg per discharge event.	Reduce concentration of total Table 9 compounds to <50 ppmw (or other options).
	New:	
	Same criteria as for existing sources	Reduce concentration of total Table 9 compounds to <50 ppmw (or other options).
	Total HAP load in wastewater POD streams ≥2,100 Mg/yr.	99% reduction of Table 9 compounds from all streams.
Equipment leaks	Subpart H	Subpart H with minor changes, including monitoring frequencies consistent with the proposed CAR.

TABLE 1.—STANDARDS FOR NEW AND EXISTING PAI SOURCES—Continued

Emission source	Applicability	Requirement
Product dryers and bag dumps.	Dryers used to dry PAI that is also a HAP, and bag dumps used to introduce feedstock that is a solid and a HAP.	Particulate matter concentration not to exceed 0.01 gr/dscf.
Heat exchange systems	Each heat exchange system used to cool process equipment in PAI manufacturing operations.	Monitoring and leak repair program as in HON.

•Table 9 is listed in the appendix to subpart G of 40 CFR part 63.

B. Pollutants to be Regulated and Associated Environmental and Health Benefits

Pesticide Active Ingredients production facilities emit an estimated 3,850 Mg/yr of organic and inorganic HAP. Organic HAP include methyl chloride, methanol, and toluene as well as other compounds. Hydrogen chloride is the inorganic HAP emitted in the greatest quantities by this industry. The final rule reduces overall HAP emissions from PAI facilities by 65 percent.

Some of these pollutants are considered to be carcinogenic, and all can cause toxic health effects following exposure, including nausea, headaches, and possible reproductive effects. The extent and degree to which the human health effects may be experienced is dependent upon (1) the ambient concentration observed in the area (e.g., as influenced by emission rates, meteorological conditions, and terrain); (2) the frequency of and duration of exposures; (3) characteristics of exposed individuals (e.g., genetics, age, preexisting health conditions, and lifestyle) which vary significantly with the population; and (4) pollutant specific characteristics (toxicity, half-life in the environment, bioaccumulation, and persistence).

Most of the organic HAP emitted from this industry are classified as VOC. The emission controls for HAP will reduce non-HAP VOC emissions as well. Emissions of VOC have been associated with a variety of health and welfare impacts. Volatile organic compound emissions, together with nitrogen oxides, are precursors to the formation of tropospheric ozone. Exposure to ambient ozone is responsible for a series of public health impacts, such as alterations in lung function, changes in lung structure, and aggravation of existing respiratory disease. Welfare impacts from exposure to ambient ozone include damage to selected commercial timber species and economic losses for commercially valuable crops such as soybeans and cotton.

In addition to being listed under section 112(b)(1) for the purposes of this rulemaking, HCl is listed under section 112(r) of the CAA. The intent of Section 112(r), Prevention of Accidental Releases, is to focus on chemicals that pose a significant hazard to the community should an accident occur, to prevent their accidental release, and to minimize consequences should a release occur. Hydrogen chloride, along with the other substances listed under section 112(r)(3), is listed because it is known to cause, or may be reasonably anticipated to cause death, injury, or serious adverse effects to human health or the environment (59 FR 4478, January 31, 1994). Sources that handle hydrogen chloride in greater quantities than the established threshold quantity under section 112(r)(5) will be subject to the risk management program requirements under section 112(r)(7) (58 FR 54190, October 20, 1993).

In essence, the MACT standards mandated by the CAA will ensure that all major sources of air toxic emissions achieve the level of control already being achieved by the better controlled and lower emitting sources in each category. This approach provides assurance to citizens that each major source of toxic air pollution will be required to effectively control its emissions. In addition, the emission reductions achieved by today's final standards, when combined with the reductions achieved by other MACT standards, will contribute to achieving the primary goal of the CAA, which is to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population" (CAA section 101(b)(1)).

C. Affected Sources

The affected source for the purpose of this regulation is the facility-wide collection of PAI manufacturing process units (PAI process units) that process, use, or produce HAP, and are located at a plant site that is a major source, as defined in section 112(a) of the CAA. An affected source also includes waste management units, heat exchange systems, and cooling towers that are associated with the PAI process units. A PAI process unit includes: the processing equipment; connected piping and ducts; associated storage vessels; and components such as pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems that are assembled at a facility for the purpose of manufacturing a PAI or integral intermediate.

The final rule specifies that new source requirements apply to an affected source for which construction or reconstruction commenced after November 10, 1997, or to any single PAI process unit that meets the following conditions: (1) It is not part of a process unit group; (2) construction commenced after November 10, 1997; and (3) it has the potential to emit 10 tons/yr of any one HAP or 25 tons/yr of combined HAP. The EPA expects that reconfiguration of processing equipment in a process unit group at an existing source generally will not meet the definition of construction or reconstruction. Therefore, reconfiguration generally will not trigger new source requirements.

D. Compliance Dates

Existing sources must comply within 3 years after June 23, 1999. New or reconstructed affected sources must comply on June 23, 1999 or startup, whichever is later.

E. Process Vent Provisions

The final standards require existing sources to reduce organic HAP emissions from each process with uncontrolled organic HAP emissions greater than or equal to 0.15 Mg/yr. The reduction may be either 90 percent from the sum of all vents within the process or to a total organic carbon (TOC) outlet concentration of 20 parts per million by volume (ppmv). If some vents within a process are controlled to the outlet concentration limits, the 90 percent reduction requirement applies to the sum of uncontrolled organic HAP emissions from all other vents in the process. Additionally, the final rule requires organic HAP emissions from any individual vent that meets certain annual emissions and flowrate criteria to be reduced by 98 weight percent or

to outlet concentrations of 20 ppmv as TOC: the 90 percent requirement would apply to the sum of organic HAP emissions from all other vents in the process. (Those process vents achieving 90 percent control prior to November 10, 1997 are not required to meet the 98 percent control requirement.)

The final standards also require existing sources to reduce HCl and chlorine emissions by 94 percent from each process or to an outlet concentration of 20 ppmv if the sum of uncontrolled HCl and chlorine emissions from all vents in the process is greater than or equal to 6.8 Mg/yr.

New sources are required to meet various process-based control levels. Specifically, for each process where the sum of the uncontrolled organic HAP emissions from all vents in the process is greater than or equal to 0.15 Mg/yr, the final standards require an overall 98 percent reduction in the organic HAP emissions per process. Alternatively, the final standards require that control devices meet outlet concentrations of 20 ppmv as TOC, and the 98 percent reduction requirement applies to the sum of uncontrolled organic HAP emissions from all other vents in the process.

The final standards also require new sources to reduce HCl and chlorine emissions by either a specified percentage or to an outlet concentration not to exceed 20 ppmv. If the uncontrolled HCl and chlorine emissions from the sum of all vents within a process are greater than or equal to 6.8 Mg/yr and less than 191 Mg/yr, the final standards require a reduction of at least 94 percent from the sum of all vents that are not controlled to 20 ppmv. If the uncontrolled HCl and chlorine emissions from the sum of all vents within a process are greater than 191 Mg/yr, the final standards require a reduction of at least 99 percent from the sum of all vents that are not controlled to 20 ppmv.

The final rule also contains an alternative standard for process vents that is similar to the outlet concentration options described above. The initial compliance determination and the monitoring provisions differ from the above outlet concentration options. See section IV.K for additional details regarding the alternative standard.

F. Storage Vessel Provisions

The final standards require both existing and new sources to control organic HAP emissions from storage vessels that have a capacity greater than or equal to 75 cubic meters (m^3) and HAP vapor pressure greater than or equal to 3.45 Kilopascals (kPa). New sources are also required to control organic HAP emissions from storage vessels with capacities greater than or equal to 38 m^3 and less than 75 m^3 and vapor pressure greater than or equal to 16.5 kPa. For all of the affected storage vessels, emissions must be controlled by one of the following methods:

(1) An internal floating roof with proper seals and fittings;

(2) An external floating roof with proper seals and fittings;

(3) An external floating roof converted to an internal floating roof with proper seals and fittings; or

(4) A closed vent system with a control device that is 95 percent efficient or reduces organic HAP to outlet concentrations of less than or equal to 20 ppmv as TOC.

Following comments received on the proposed storage vessel standards, the MACT floor for storage vessels was revised. For the final standards, the storage vessel cutoffs are based on the vessel capacity and the vapor pressure of the stored material rather than the capacity and uncontrolled emissions. See section VI.D for additional information on the changes made to the storage vessel standard.

The final rule also contains an alternative standard for storage vessels that is similar to the outlet concentration options described above. The initial compliance determination and the monitoring provisions differ from the above outlet concentration options. See section IV.K for additional details regarding the alternative standard.

G. Wastewater Provisions

The wastewater provisions are similar to the HON wastewater provisions (subpart G of 40 CFR part 63), except for maintenance wastewater and new source requirements. The final standards require existing and new sources to control Group 1 wastewater streams. Under the final standards, existing and new sources are required to determine Group 1 status for both process wastewater streams and maintenance wastewater streams. A process wastewater stream is a Group 1 stream for compounds listed in Table 9 of the appendix to subpart G of 40 CFR part 63 ("Table 9 compounds") if:

(1) The total annual average concentration of Table 9 compounds is greater than or equal to 10,000 ppmw at any flowrate; or

(2) The total annual average concentration of Table 9 compounds is greater than or equal to 1,000 ppmw and the annual average flow rate is greater than or equal to 10 liters per minute (L/min).

A maintenance wastewater stream is a Group 1 stream if the mass of Table 9 compounds in an individual maintenance wastewater discharge exceeds 5.3 Mg.

The final standards require existing sources with Group 1 process and maintenance wastewater streams for Table 9 compounds to do one of the following:

(1) Reduce the concentration of Table 9 compounds to less than 50 ppmw;

(2) Use a steam stripper with specific design and operating requirements;

(3) Reduce the mass flow rate of Table 9 compounds by at least 99 percent;

(4) Reduce the mass flow rate of Table 9 compounds by an amount equal to or greater than the fraction removed (Fr) value in Table 9;

(5) If a source using biotreatment for at least one wastewater stream that is Group 1 for Table 9 compounds, achieve a required mass removal greater than or equal to 95 percent for Table 9 compounds; or

(6) Treat with permitted Resource Conservation and Recovery Act (RCRA) units or by discharging to a permitted underground injection well.

The final standards require new sources with Group 1 wastewater streams for Table 9 compounds to control Table 9 compounds to the same level required for existing sources. In addition, new sources with a total mass flow rate from the source of 2,100 Mg/yr or more of Table 9 compounds would be required to reduce the mass flow rate of Table 9 compounds from all wastewater streams by 99 percent. This difference from the HON was needed because the MACT floor for new sources is more stringent than the provisions in the HON for facilities that exceed this mass flow rate cutoff.

A source is exempted from the wastewater standards if:

(1) The total mass flow rate of Table 9 compounds in Group 1 streams is less than 1 Mg/yr; or

(2) If the total mass flow rate of Table 9 compounds in untreated Group 1 wastewater streams and in Group 1 wastewater streams that are treated to levels less stringent than the levels required by the standard is less than 1 Mg/yr.

H. Equipment Leak Provisions

Today's final rule contains revisions to the proposed equipment leak requirements that were based on subpart H (of the HON rule). The final rule contains changes to the standards for valves and connectors in gas/vapor service and light liquid service as

follows: the requirement to implement a quality improvement program and all references to 40 CFR § 63.175 have been removed; an allowance for monitoring every 2 years for those processes with less than 0.25 percent leaking valves has been added; an allowance for valve subgrouping was also added; the equation used to determine the percent of leaking valves in a process was changed to eliminate the optional credit for valves removed, and, the rolling average of leaking valves was revised so that it is calculated as an average of the last three monitoring periods for annual or biannual monitoring programs. The monitoring schedule for connectors in gas/ vapor service and light liquid service was also revised to allow for decreased monitoring for those components with the lowest leak rates. If less than 0.25 percent of the connectors in a group of processes are leaking, the monitoring frequency is now once every 8 years. These changes, which are consistent with the proposed consolidated air rule (CAR), are designed to reduce the recordkeeping requirements while achieving the same level of control as under subpart H. The standard for existing sources is based on a regulatory alternative more stringent than the floor, and the standard for new sources is based on the MACT floor for new sources.

I. Bag Dump and Product Dryer Provisions

Under the final standards, particulate matter emissions are not allowed to exceed 0.01 grains per dry standard cubic foot (gr/dscf) from both (1) product dryers that are used to dry a PAI (or integral intermediate) that is also a HAP, and (2) bag dumps that are used to introduce a feedstock that is a solid material and a HAP. The standard applies to both existing and new sources.

J. Heat Exchanger System Provisions

The final standards apply to each heat exchange system that is associated with the affected source. The standards require a monitoring program to detect leakage of organic HAP from the process into the cooling water. The final standards refer to the monitoring program in the HON (§ 63.104 of subpart F).

K. Alternative Standard

As an alternative to the requirements for process vents and storage vessels that are discussed in sections IV.E and F, respectively, the emissions from any process vent may be routed to a control device achieving outlet concentrations of less than or equal to 20 ppmv TOC (calibrated on methane or the predominant HAP) and less than or equal to 20 ppmv HCl and chlorine. Initial compliance with the alternative standard is achieved when the outlet concentrations for TOC are demonstrated using a TOC monitor that meets the requirements of Performance Specification 8 or 9 of appendix B of 40 CFR part 60. Monitoring to demonstrate ongoing compliance is also conducted with the TOC monitor. Initial and ongoing compliance with the alternative standard for HCl and chlorine is achieved when the outlet concentrations are demonstrated using Method 26.

L. Pollution Prevention Alternative

For existing sources, the promulgated rule also includes a pollution prevention (P2) alternative standard that meets the requirements of the MACT standards and can be implemented in lieu of the requirements described above. The P2 alternative standard provides a way for facilities to comply with the MACT standards by reducing overall consumption of HAP from their processes. The two options that were developed are described in Table 2 and are discussed below.

TABLE 2.—ALTERNATIVE P2 STANDARD

Option	Description of P2 option
1	Demonstrate an 85% reduction in the production-indexed HAP consumption factor (kg HAP consumed/kg product produced) from a baseline period.
2	Demonstrate at least a 50% reduction in the production-indexed HAP consumption factor and additional reduction from add-on control to yield overall reduction equivalent to an 85% reduction in the production-indexed HAP consumption factor from a baseline period.

In the first option, an owner or operator can satisfy the MACT requirements for all process vents, storage vessels, equipment leaks, wastewater, and heat exchange systems associated with an existing process by demonstrating that the production-indexed consumption of HAP has decreased by 85 percent from a baseline (certain restrictions are discussed below). The baseline comprises the average consumption and production values averaged over the first 3-year period in which the process was operational, beginning no earlier than the period consisting of the 1987 to 1989 calendar years. Alternatively, for a process that has been operational for less than 3 years, but more than 1 year, the baseline may be established for the time period from startup of the process until the present. The production-indexed HAP consumption factor (HAP factor) is expressed as kilograms (kg) HAP consumed per kg product produced. The numerator in the HAP factor is the total consumption of material, which describes all the different areas where material can be consumed, either through losses to the environment, consumption in the process as a reactant, or some other form of destruction. Consumption, rather than emissions, is tracked because it can be used as a true measure of pollution prevention; any decrease in consumption for the same unit of product generated must involve some type of increase in process efficiency, including reduction of waste, increased product yield, and in-process recycling. Because HAP are used generally as raw materials and solvents in this industry, reductions in consumption can be generally associated with reductions in emissions to air, water, or solid waste.

The second option also uses the production-indexed HAP consumption factor and is also applied to existing processes. This option allows an owner or operator to supplement reductions achieved with P2 with add-on controls. The EPA believes that such an option will provide greater flexibility and cost efficiency to the operators who already may have some add-on controls. Under this option, an owner or operator must demonstrate reductions in the HAP factor of at least 50 percent via P2 measures. In addition, the mass of HAP emissions must be reduced by an amount that, when divided by the production rate and added to the reduction in the HAP factor, yields a reduction equivalent to at least 85 percent of the baseline HAP factor. Thus, the total reduction required by option 2 would be equivalent to or greater than an 85 percent reduction in the HAP factor, the same as in option 1.

The following restrictions also apply to the pollution prevention standards in today's final rule. First, for any reduction in the production-indexed HAP consumption factor that is achieved by reducing a HAP that is also a VOC, an equivalent reduction in the production-indexed VOC consumption factor is required. Second, for any reduction in the production-indexed HAP consumption factor that is achieved by reducing a HAP that is not a VOC, the production-indexed VOC consumption factor may not be increased. Third, particulate matter emissions from product dryers are excluded from the P2 option because

the product is not consumed in the process. Fourth, processes that began operation after November 10, 1997 are not eligible for the P2 alternative. Fifth, the P2 alternative does not apply to HAP that are generated in the process if they are not also added as a raw material or solvent; emissions of these generated HAP must be controlled as specified in the standards for process vents, storage vessels, equipment leaks, and wastewater systems.

Today's final rule also require owners and operators complying with the P2 standard to submit a P2 Demonstration Summary as part of the Precompliance plan that describes how the P2 alternative will be applied at their facilities. The minimum data requirements for the P2 Demonstration Summary are listed in § 63.1364(g)(3) of today's final rule.

M. Emissions Averaging Provisions

Today's final rule includes emissions averaging provisions that are essentially unchanged from the proposed provisions that would allow emissions averaging among process vent, storage vessel, and wastewater emission points within an existing affected source. Under emissions averaging, a system of "credits" and "debits" is used to determine whether an affected source is achieving the required emissions reductions. Emissions averaging allows existing sources the flexibility to achieve compliance at diverse points with varying degrees of control already in place in the most economically and technically reasonable fashion. This flexibility to account for controls already in place is not as justified for new sources because they can and should be designed and constructed with compliance in mind. Therefore, new sources are not allowed to use emission averaging.

N. Initial Compliance and Performance Test Provisions

1. Promulgated Standards

a. *Process Vents.* To determine compliance with the percent reduction requirements for gaseous HAP and HCl emissions from PAI process vents, the owner or operator is required to quantify the uncontrolled and controlled gaseous emissions from all process vents to demonstrate the appropriate overall reduction requirements. For process vents controlled by a device with an inlet of less than 9.1 Mg/yr of HAP, the owner or operator can either test or use mathematical methodologies to determine the uncontrolled and controlled emission rates from individual process vents. For process vents controlled by a device with an inlet of 9.1 Mg/yr or more of HAP, performance tests are required to determine the reduction efficiency of each device.

Performance test provisions were structured to account for the peak-case emissions. The EPA adopted this approach primarily for batch operations, which, because of their cyclic nature, tend to have variable emissions. Continuous processes tend to have more consistent emissions, but for simplicity, the same performance test provisions are applied to controls for continuous processes. This approach essentially considers emissions from continuous processes to be peak-case at all times. Control devices, that have previously been tested under conditions required by this standard, and condensers are exempt from performance testing.

To determine compliance with the outlet concentration standards, the final rule requires the owner or operator to conduct a performance test using the EPA methods specified in the rule under the same peak-case conditions. Today's final rule also specifies procedures to demonstrate initial compliance when using flares.

b. *Storage Vessels.* For demonstrating compliance with the percent reduction requirements for storage vessel emissions, today's final rule requires that the owner or operator conduct either a performance test or a design evaluation. To demonstrate compliance with the 20 ppmv outlet concentration, the final rule requires the owner or operator to conduct a performance test. However, if a control device is shared by storage vessels and process vents, the results of a performance test conducted to demonstrate compliance with the process vent standards may also be used to demonstrate initial compliance with storage vessel standards. For demonstrating compliance with the floating roof equipment standards, the final rule refers to the compliance provisions in the HON. Today's final rule also specifies procedures to demonstrate initial compliance when using flares.

c. *Wastewater.* The wastewater provisions in the final rule remain essentially unchanged from those of the proposed rule. For demonstrating compliance with the various wastewater requirements, owners and operators have a choice of using a specified design, conducting performance tests, or documenting engineering calculations, consistent with the wastewater provisions in the HON. Appropriate inspection, monitoring, reporting, and recordkeeping requirements are included in the regulation via cross-references to the HON.

d. *Equipment Leaks.* To determine compliance with the standard for equipment leaks, facilities must demonstrate that an LDAR program meeting the requirements of the final rule is in use.

e. *Bag Dumps and Product Dryers.* To demonstrate initial compliance with the particulate matter emission limit of 0.01 gr/dscf, the owner or operator is required to conduct a performance test.

2. Pollution Prevention Alternative Standard

To demonstrate initial compliance with the pollution prevention alternative standard, the final rule requires the owner or operator to document yearly quantities of HAP raw materials and products using preapproved material tracking records, including standard purchasing and accounting records, and calculating the baseline HAP and VOC factors. Prior to the compliance date, the final rule requires owners and operators to submit a pollution prevention Demonstration Summary that describes how the pollution prevention alternative will be applied at the facility. The pollution prevention Demonstration Summary provides the regulatory agency an opportunity to review and approve the proposed material tracking procedures. Procedures are also specified in the final rule to demonstrate that the required reductions are achieved by the control devices used to meet option 2.

O. Monitoring Requirements

1. MACT Emission Standards

The final rule requires monitoring to demonstrate compliance on an ongoing basis. This monitoring is done either by (1) continuously measuring emission reductions directly, or (2) continuously measuring a site-specific operating parameter, the value of which is established by the owner or operator during the initial compliance determination. The operating parameter value is defined as the minimum or maximum value established for a control device or process parameter that, if achieved on a daily average by itself or in combination with one or more other operating parameter values, determines that the owner or operator is complying with the applicable emission standards. Except for the bag leak detectors, these parameters are required to be monitored at 15-minute intervals throughout the operation of the control device. For a device controlling streams that, in aggregate, contain less than 0.91 Mg/yr of HAP, only a site-specific

periodic verification that the device is operating as designed is required to demonstrate continuous compliance. Owners and operators must determine the most appropriate method of verification and propose this method to the Agency for approval in the Precompliance plan, which is due 6 months prior to the compliance date of the standard.

Under the final rule, each fabric filter that is used to control particulate matter emissions from a bag dump or product dryer that is subject to the particulate matter standard must be equipped with a bag leak detection system with an alarm to indicate bag leaks or other causes of increased emissions. In addition, the owner or operator must prepare a written operation and maintenance manual that describes inspection and maintenance procedures for these fabric filters. The manual must also include a corrective action plan that describes procedures to diagnose the cause of any alarm as well as corrective actions to be taken to correct malfunctions or minimize emissions. The manual must be submitted to EPA for approval in the Precompliance report. Not initiating the corrective action plan within 1 hour of an alarm is a violation of an operating requirement.

2. Pollution Prevention Alternative Standard

An owner or operator electing to use the pollution prevention alternative can demonstrate ongoing compliance by calculating the rolling average of the HAP and VOC factors for each applicable process or portions of the process. For continuous processes, the rolling average is calculated every 30 days, and for batch processes, the rolling average is calculated every 10 batches. In both cases, the rolling average is based on data from the previous 12 months. In addition, an owner or operator electing to use pollution prevention Option 2 is required to monitor the emission reduction obtained through the use of traditional controls using the methods described above.

P. Recordkeeping and Reporting Requirements

The owner or operator of any PAI production facility subject to these standards is required to fulfill reporting requirements specified in the final rule, as well as requirements outlined in the General Provisions of subpart A to 40 CFR part 63. Table 1 following the regulatory text of today's final rule designates which sections of subpart A apply to the rule. Generally, the recordkeeping provisions require the owner or operator to maintain all records documenting the applicability determinations and indicating that the source is in compliance with the applicable requirements. Required reports under this standard include the Initial Notification of applicability to the standards, the Precompliance report, the Notification of Compliance Status report, and the Periodic reports required after the date of compliance.

V. Summary of Nationwide Impacts

The emission reductions that are required by this regulation could be met by regulated sources using one or more of several different techniques. Impacts were estimated for control scenarios based on traditional control techniques that were judged to be the most feasible for meeting the requirements of the final standards from a technical and cost standpoint. Energy, cost, and economic impacts of the pollution prevention alternative would be equivalent to or lower than the estimated impacts for traditional controls because it is likely that an owner or operator would elect to implement only those pollution prevention techniques that have lower impacts than traditional controls.

A. Air Impacts

The standards are estimated to reduce HAP emissions from existing sources by 2,500 Mg/yr from the baseline level, a reduction of 65 percent from the baseline (i.e., current) emissions level, and 93 percent from the uncontrolled emissions level. These reductions would also occur if facilities elect to implement the alternative pollution prevention standard. In addition to reducing HAP emissions, VOC will also be reduced. This reduction includes both VOC that are HAP and other VOC that are not HAP. Volatile organic compounds are precursors in the atmospheric reaction with oxides of nitrogen that generates tropospheric ozone. The amount of VOC reduction (beyond the HAP portion of the VOC) due to implementation of the PAI standards has not been quantified for this rulemaking. The basis for the estimated emissions reductions is discussed in Chapter 5 of the Basis and Purpose Document and in memoranda in the docket (Docket A-95-20, Docket item numbers III-B-1, IV-B-2, IV-B-3, and IV-B-4).

B. Water and Solid Waste Impacts

With the assumption that overheads from steam stripping will be recoverable as material or fuel, no solid waste is expected to be generated from steam stripping wastewater streams. Additionally, no solid waste is expected to be generated from controls of other emission points.

Under the final standards, wastewater generated from water scrubbers used to control HCl emissions is expected to increase by an estimated 10.8 million liters per year. The volume of wastewater generated would also increase at plants that choose a water scrubber to control certain water soluble organic HAP; however, the increase is expected to be minimal because the use of water scrubbers for this purpose is expected to be uncommon. The basis for the water and solid waste impacts is discussed in the Environmental Impacts memorandum in the Supplementary Information Document in the docket (Docket A-95-20, Docket item number II-B-21).

C. Energy Impacts

Under the final standards, energy use is expected to increase by an estimated 4,880 x 109 British thermal units per year (Btu/yr). The basis for the estimated energy use is discussed in the Environmental Impacts memorandum in the Supplementary Information Document in the docket (Docket A-95-20, Docket item number II-B-21).

D. Cost Impacts

The total control cost includes the capital cost to install control devices (including floating roofs), the costs involved in operating control devices (energy and operating and maintenance costs), costs associated with monitoring control devices to ensure compliance, costs associated with implementing work practices, and the cost savings generated by reducing the loss of valuable product in the form of emissions. Monitoring costs include the cost to purchase and operate monitoring devices, as well as reporting and recordkeeping costs required to demonstrate compliance. Average cost effectiveness, dollars per megaram ($/Mg) of HAP removed, is also presented as part of cost impacts and is determined by dividing the annual cost by the annual emission reduction. The basis for the cost impacts is discussed in the Cost Impacts memorandum in the Supplementary Information Document and in subsequent memoranda in the docket (Docket A-95-20, Docket item numbers II-B-21, IV-B-2, IV-B-3, and IV-B-5).

Under the final standards, EPA estimates that the total capital costs for existing and new sources will be $71.6 million and $10.3 million, respectively (June 1998 dollars). The total annual costs for control at existing and new sources are estimated to be

approximately $39.4 million and $5.47 million, respectively (June 1998 dollars). The average cost effectiveness of the standards is estimated to be about $15,800/Mg for existing sources and $13,400/Mg for new sources.

The EPA estimates that in the first three years following promulgation industry's nationwide annual cost burden will average $304,000/yr for monitoring, recordkeeping, and reporting requirements. Most of these costs are for new and reconstructed sources that must be in compliance upon startup; other costs are for existing sources to prepare initial notifications and plans. In the fourth year after promulgation, existing facilities must begin to record monitoring data and prepare periodic reports, which will significantly increase the nationwide annual burden.

It is expected that the actual compliance cost impacts of the final rule will be less than described above because of the potential to use common control devices, upgrade existing control devices, use other less expensive control technologies, implement pollution prevention technologies, or use emissions averaging. Because the effect of such practices is highly site-specific and data were unavailable to estimate how often the lower cost compliance practices could be utilized, it is not possible to quantify the amount by which actual compliance costs will be reduced. The EPA believes that the overall control costs and the monitoring, reporting, and recordkeeping costs will be substantially reduced for the facilities opting to comply via the pollution prevention option.

E. Economic Impacts

The control costs imposed on producers in the PAI production industry will increase their cost of production. The effects of the changes in production costs are evaluated in the "Economic Impact Analysis of the Proposed NESHAP for the Production of Pesticide Active Ingredients" (Docket A-95-20, Docket item No. II-A-20). This report was not changed as a result of public comments and will serve as documentation for the final rule. The resulting increase in production costs will increase the market price by less than 1 percent and decrease market output by less than 1 percent. In addition, the regulation's impact on foreign competition is relatively small. Social cost incorporates the changes in welfare to consumers, unaffected producers, and foreign producers and consumers to the cost of the regulation. These costs were determined to be negligible for the PAI production industry; therefore, the total social cost is estimated to be equal to the total control cost. No plant closures are expected from compliance with this set of alternatives.

VI. Major Comments and Changes to the Proposed Standards

A. Applicability Provisions

1. Selection of Source Category

The initial list of categories of major and area sources included 10 source categories in the agricultural chemicals industry group. In June 1996, butadiene furfural cotrimer was moved from the polymers and resins industry group to the agricultural chemicals industry group (61 FR 28197). In the notice of proposed rulemaking, EPA made the following additional changes: (1) All active ingredients within the meaning of FIFRA section 2(a) that are used in herbicide, insecticide, or fungicide pesticide end-use products were added to the agricultural chemicals industry group; (2) the individual initial and new source categories in the agricultural chemicals industry group were combined into a single source category; and (3) the new source category was named "pesticide active ingredient production."

The EPA received numerous comments on the change in the source category. Many of the commenters requested exemptions for specific processes or classes of processes. Examples include: antimicrobials; chromic acid and sodium bichromate; chlorine; sodium hypochlorite; kaolin (aluminum silicate); sulfuric acid, particularly from copper smelters; and copper sulfate, from copper refineries and rod mills. The commenters contend that these processes should be exempt because the production processes are significantly different than organic PAI production processes. In addition to differences in the production processes, each commenter cited one or more of the following reasons to support their requests for exemptions: (1) Minimal toxicity of some of the products themselves; (2) the HAP emitted are not organic compounds or HCl, or they are impurities introduced with feedstocks; (3) regulation would achieve minimal environmental benefit but impose significant burden, especially to demonstrate that equipment does not emit HAP; (4) the product is not primarily sold for use as PAI; and (5) the production process is part of another source category that will be regulated by another MACT standard, is part of a delisted source category, or, if not currently listed, would be more logically listed among the categories of inorganic chemicals. Some of the commenters also indicated that sulfuric acid plants will be MACT for copper and lead smelter furnaces.

Some commenters opposed the expansion of the source category because some products are produced synthetically and others are derived from naturally occurring materials. These commenters are also concerned that the proposal did not identify either the number of processes that would be covered or examples of the processes, and that EPA has not ensured that process operation, emission characteristics, control device applicability, and costs are similar. As a result, they contend that the proposed regulation is arbitrary and capricious, is inconsistent with the Clean Air Act and EPA's procedures for developing MACT standards, and defeats the purpose of creating source categories. The commenters suggested limiting the regulation to synthetically produced materials because this would be consistent with the process descriptions presented in the Basis and Purpose document and with the definition of intermediate (i.e., a compound produced in a chemical reaction). These commenters explained that other regulations (e.g., the HON) have recognized this distinction, and many of the compounds derived from naturally occurring materials are not used primarily as PAI's.

One commenter stated that EPA should not further expand the source category beyond that covered by the proposed rule because owners and operators of other processes may not have read the proposal preamble closely enough to realize that EPA was requesting comment on such action. Two commenters supported the scope of the applicability and the definition of PAI.

The reasons for expanding the source category to include PAI's other than those on the initial source category list, and for aggregating them all together in a single source category, are summarized in section I of this preamble. Since proposal, however, EPA reexamined the scope of the source category and determined that the proposed rule included some processes that are not similar to the others. For the final rule, changes were made to narrow the scope of the source category; in addition, for processes that remain in the source category, changes have been made to exempt some processes and to clarify requirements for others. These changes are: (1) A statement has been added to specify that the provisions of the rule apply only to PAI process units that "process, use, or produce HAP"; (2)

the definition of PAI has been changed to mean any organic material that is an active ingredient within the meaning of Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) section 2(a); and (3) a statement has been added to specify that the provisions of the rule do not apply to the production of ethylene (processes subject to the HON are also exempted, as they were in the proposed rule). Finally, EPA decided not to limit the source category only to production of compounds by chemical synthesis. Each of these decisions is discussed in more detail later in this section. The provision specifying that the rule applies only to PAI process units that "process, use, or produce HAP" has been added to the final rule because EPA did not intend for owners and operators to demonstrate compliance for processes that do not meet this condition. Note, however, that this provision does not automatically exempt process units that do not "emit" HAP; for emission points in such process units, an owner or operator must demonstrate that emissions are less than the applicability thresholds.

The EPA decided to exclude production of inorganic compounds from the source category because: (1) Inorganic PAI's comprise only a small percentage of the total PAI production; (2) many of the inorganic PAI production processes do not use or emit HAP; (3) data are unavailable on the use, emissions, and control of HAP compounds other than organics and HCl; (4) some of the inorganic PAI's are included in other active or delisted source categories; and (5) most of the inorganic PAI's are used primarily for non-pesticidal purposes. In this context, "organic" means any compound that contains carbon and hydrogen with or without other elements. Based on a review of pesticide registration data in 1996, less than 10 percent of the PAI's in pesticide products that are registered as insecticides, herbicides, or fungicides are inorganic compounds. Inorganic compounds comprise a similar percentage by weight based on 1993 consumption data; the top 25 compounds account for nearly half of the total PAI production, and the two inorganic compounds in the group (sulfur and copper hydroxide) account for less than 10 percent of the total.

Of the inorganic PAI processes, only those producing HCl, chlorine, and compounds containing arsenic and chromium are known to use and emit HAP. Both HCl and chlorine production precesses are part of source categories that will be addressed by other MACT standards that are under development. Chromium-based compounds are part of the delisted chrome chemicals source category and thus, EPA agrees with the commenter that they should not also be part of the PAI source category. Data on the existing control levels for arsenic-based compounds are unavailable. In the absence of such data, EPA has decided that production of such compounds should not be part of the PAI source category.

The commenters cited examples of some inorganic compounds that are primarily used for nonpesticidal purposes. The EPA believes there are other inorganic compounds that could be added to this list of compounds used only in minor amounts as pesticides. Conversely, most of the organic compounds are specifically designed as PAI's. Exceptions include ethylene, which has been specifically exempted in the final rule because it is the subject of a MACT standard that is under development, and several compounds covered by the HON such as acrolein, ethylene oxide, napthalene, and propylene glycol.

Production of organic PAI compounds that are derived from natural materials is retained in the source category. Natural materials used as PAI's fall into one of two categories. One category includes materials such as herbs, tobacco dust, dried blood, chitin, putrescent whole egg solids, pyrethrum flowers, cinnamon, sawdust, and ground sesame plant. These compounds are simply harvested or collected and the only processing involves mechanical action. None of these compounds is a HAP. As a result, these processes are not subject to the final rule because the production processes do not process, use, or produce HAP. The second category includes compounds like turpentine that are extracted from natural materials. Extraction processes are not exempted from the final rule because they tend to use large amounts of solvent and have a high potential for emissions. Emissions from extraction processes tend to be more concentrated than emissions from many of the operations in chemical synthesis processes, and they tend to be larger scale operations than extraction operations that are part of a chemical synthesis process. These characteristics make control of extraction processes more cost effective than control of many chemical synthesis processes. However, because the final rule includes a primary use criterion for determining applicability (see section VI.A.2), extraction processes are only subject to the final rule if the product is primarily used as a PAI.

One commenter believes the Captan® process (one of the 10 initial source categories) should not be combined with other PAI processes because it differs from the other processes in a number of ways. According to the commenter, some of the differences are: (1) The process vent flow rate for production of the intermediate is much lower than the process vent flow rate for the active ingredient production, which leads to differences in the complexity and cost of the control devices; (2) the Captan® process has both volatile organic HAP and particulate HAP emissions; and (3) the cost to control carbon disulfide emissions would be much higher than the modeled costs.

The EPA disagrees with the commenter's assertion that the Captan® process (and the associated intermediate process) should be considered separately from other PAI processes. The EPA assumed the intermediate is an integral intermediate. As a result, the intermediate process and the Captan® process are separate processes, both of which are subject to the final rule. Although the flow rates of the intermediate and Captan® process vent streams differ, the flow rates and other process vent stream characteristics for both processes are well within the range of characteristics for process vent streams at other surveyed PAI facilities. These differences were accounted for in EPA's impact analysis by using different models to represent the two processes.

In addition, although the Captan® process itself emits both particulate HAP (i.e., the Captan® product) and a gaseous organic HAP, carbon disulfide, the two pollutants are emitted from different vents. The particulate emissions from product dryers also are considered to be a separate type of emission point like process vents or storage vessels. The fact that this facility is the only one of the MACT floor facilities to have HAP emissions from product dryers is not considered a significantly unique characteristic. It is analogous to the fact that some of the other plants have HAP storage vessel emissions or wastewater discharges and are subject to the specific standards for these emission points, where other plants are not. Finally, EPA believes the cost impacts analysis is correct. Carbon disulfide can be controlled with many of the same control devices that are used to control other organic HAP. If incinerated, the resulting sulfur dioxide (SO_2) emissions can be controlled using scrubbers comparable to those used to control HCl emissions. A detailed discussion of the cost analysis is provided in section VI.O.2. Therefore, EPA believes the Captan® process is not sufficiently different from other PAI processes to warrant development of a

subcategory or a separate source category.

2. Designation of Affected Source

At proposal, the affected source was defined as the facility-wide collection of process vents, storage tanks, waste management units, heat exchange systems, cooling towers, equipment identified in § 63.149 of subpart G, and equipment components (pumps, compressors, agitators, pressure release devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems) in PAI manufacturing operations at a major source of HAP emissions. The EPA received several comments on the affected source. The comments focused on the following issues: (1) Definition of terms, (2) limiting applicability to processes where the primary product is a PAI, and (3) limiting applicability to processes where the product is primarily used as a PAI.

a. *Definitions.* Two commenters requested changes in the definition of the affected source and in the terms used to describe the affected source. One commenter requested that the definition of "pesticide active ingredient manufacturing operations" exclude waste management units because these units are not subject to the standards but instead are used to comply with the standards, and typically they are not dedicated to a particular production process. In addition, the commenter expressed concern that the proposed definition could be interpreted to require compliance with new source standards at an existing waste management unit simply because a new and major PAI manufacturing operation is built that will contribute wastewater to the unit.

The second commenter believes the definition of affected source needs to be revised to include not only the emission points, but also the process unit and emission control technologies. The commenter recognizes that the definition in the proposed rule is similar to the definitions in other MACT standards, but the commenter has recently realized that it is too narrow. For example, in determining whether changes constitute "reconstruction," the changes must cost more than half as much as building a new similar affected source. However, under the proposed rule, the affected source included only process vents, not the reactors, distillation units, or other process equipment of which the vent is a part. Similarly, it included valves and connectors on process piping, but not the piping itself. The commenter also contended that the cost of installing emission controls is a legitimate part of the cost of building a new affected source, but to consider that cost in the reconstruction analysis, emission control technologies must be included in the definition of the affected source.

The EPA made several changes to the definition of affected source and related terms to respond to the comments and to clarify the terms. One change was to remove much of the language from § 63.1360(a) because it is included in the definition of other terms in § 63.1361. Another change was to eliminate the term "PAI manufacturing operations" because it is redundant with the definition of the affected source. In its place, the term "PAI process unit" is used to describe the process and all related equipment used to produce a single PAI or integral intermediate. The EPA agrees with the commenter that the equipment and piping within a process are components of an affected source that should be considered in the fixed capital cost analysis for determining whether changes constitute reconstruction. For the final rule, these items have been included, along with most of the items on the list of equipment in the proposed definition of the affected source, in the definition of the "PAI process unit."

The EPA also agrees with the commenter that waste management units should not be considered part of the PAI manufacturing operations or, in the final rule, part of the PAI process unit. However, waste management units are not used to comply with the standards; they are a type of emission point for which standards are developed. Therefore, waste management units are considered part of the affected source in the final rule. This change makes the final rule consistent with other MACT standards and allows the waste management units to be considered in reconstruction analyses.

Finally, the commenter's conclusion regarding the application of new source requirements is correct. If a new PAI process unit meets the requirements for new source applicability, then the waste management units associated with that new PAI process unit would have to meet the requirements for new sources. If the owner or operator wants to discharge to existing waste management units, they must meet the requirements for new sources. The practical impact of this requirement, however, is expected to be minimal because the requirements for new sources and existing sources are identical except when the HAP load to the waste management units exceeds 2,100 Mg/yr. Based on survey data from the industry, no single existing PAI process unit discharges wastewater with such a high load (and only one facility discharges wastewater containing that much HAP).

The EPA disagrees with the commenter's assertion that control devices should be a component of an affected source for the purposes of determining reconstruction costs. The preamble to the General Provisions cites EPA's policy on this issue, which was originally stated in the preamble to a December 16, 1975 regulation that deals with modification, notification, and reconstruction requirements under 40 CFR part 60. That preamble states, "Costs associated with the purchase and installation of air pollution control equipment (e.g., baghouses, electrostatic precipitators, scrubbers, etc.) are not considered in estimating the fixed capital cost of a comparable entirely new facility unless that control equipment is required as part of the process (e.g., product recovery)" (40 FR 58416, December 16, 1975).

b. *Primary Product.* Two commenters urged EPA to specify, as in other MACT standards, that a process (or process unit) is subject to the rule only if its primary product is a PAI. Both commenters believe this determination is needed when processing equipment periodically is reconfigured to produce different products. In addition, one of the commenters believes it is needed when multiple products are produced by a given process unit. This commenter also believes it is needed when a facility makes a change that is intended to be permanent because the commenter could not find any provision in the proposed rule that would allow such a process unit to be exempt from the rule if they stop making a PAI. The commenters believe the primary product determination would help manufacturers determine which rules apply and would result in regulation of processes that produce a given product under only one, most appropriate MACT standard. One commenter suggested that the primary product be defined as the one with the greatest annual design capacity on a mass basis. The other commenter noted that a simple way to define applicability is to specify that if a process unit stops making a PAI, the PAI rule no longer applies.

Another commenter interpreted the proposed rule to mean that the rule would apply whenever a PAI is produced. If a facility uses non-dedicated equipment, the commenter realized that this could mean that other rules would apply when the equipment was reconfigured to produce a different

product (e.g., the proposed pharmaceuticals rule used the same language). The commenter believes that complying with two standards for the same equipment would be confusing. Therefore, the commenter suggested that the PAI rule apply only when 50 percent or more of the annual production from the equipment is a PAI, or that EPA allow a facility to comply only with the most stringent rule that would apply to the equipment, regardless of the configuration or the product being produced.

In response to the comments EPA evaluated several options for including a primary product determination. The analysis considered two types of situations. The first situation consists of processing equipment that produces only one PAI, produces different PAI's at different times, or simultaneously produces coproducts (one of which is a PAI). The second situation involves processing equipment that produces different products periodically, and some of the products are not PAI's.

For the first situation, EPA determined that a primary product determination is not needed. This conclusion is obvious for equipment that only produces PAI's because no other rule could apply (because compounds subject to the HON are exempted from today's final rule). The analysis is more complicated if a PAI is produced as a byproduct or is produced in minor quantities relative to some other product of the process. The EPA is not aware of any such situations. However, if such processes exist, they may already be subject to the HON, in which case they are exempted under § 63.1360(d) of today's final rule. The only other standard that might apply to such a process in the future is the Miscellaneous Organic NESHAP (MON). The MON will cover a wide variety of compounds in many different industries. Thus, EPA believes that a process unit producing a PAI, even if the PAI is not the primary product, has more in common with other PAI process units than with process units that will be subject to the MON. Therefore, EPA also believes it is more appropriate to regulate all such process units under today's rule rather than the MON.

The EPA considered four options for defining the applicability of the rule to equipment periodically used to produce chemicals other than PAI's. The first option is no change from proposal (i.e., no primary product determination). The second option is to include all equipment used to produce different products in a "process unit group," and always comply with the regulation that applies to the primary product for the group, regardless of what product is being produced. The third option is to define applicability of the rule based on the primary product of the process unit. The fourth option is similar to Option 2, except that the applicable rule for the process unit group could, under certain circumstances, be a rule other than the one for the primary product of the group.

Under option 1, a PAI process unit exists whenever a PAI is being produced, when there is no primary product determination, and when the owner or operator must comply with the PAI standard for each PAI process unit. This option was rejected because, as the commenters noted, it has the undesirable effect of requiring an owner or operator to comply with a different regulation each time the feedstock changes or the equipment is reconfigured to make a different type of product.

The second option is to lump all non-dedicated equipment into one or more "process unit groups" and require the owner or operator to comply with the rule that applies to the primary product within the group. A variation on this option would be to require compliance at all times with the most stringent rule that would apply to any of the individual process units within the group. This option was rejected because the promulgated pharmaceuticals standard does not include a provision that would allow an owner or operator to elect to comply with today's final rule when a pharmaceutical is produced in a process unit group that has a PAI for the primary product. The variation also was rejected because it would be difficult to implement; the most stringent regulation would vary depending on the mix of different types of emission points at a given facility and could require mixing and matching different requirements from different rules that apply to the various emission points.

The third option would specify that the rule apply only if the primary product of the process unit is a PAI. This option was rejected because it does not solve the problem of equipment being subject to multiple regulations. A process unit is defined only by the product it makes. If the raw materials are changed or the equipment is reconfigured to make a different product, the result is a different process unit. An exemption for a process unit when it no longer produces a PAI would be meaningless because, by definition, a change in product creates a different process unit. In other words, it is not possible to make a permanent change in the primary product of a process unit because a given process unit cannot have more than one primary product.

The fourth option, like the second option, includes the concept of process unit groups. This option requires compliance with today's final rule for all PAI process units within the group, except for the following situations. One exception is that the owner or operator may elect to comply with another existing MACT standard for any PAI process unit(s) if the primary product of the process unit group is subject to the other standard on June 23, 1999 or the date of startup of the process unit group, whichever is later. Thus, PAI process units within a group, even if the PAI is not the primary product for the group, are subject to this standard unless and until the process unit group is subject to another MACT standard that covers the primary product of the group. This option also allows the owner or operator to elect to comply with the pharmaceuticals standard for any PAI process unit(s) if any of the products produced in the process unit group are subject to the pharmaceuticals standard. Thus, pharmaceutical manufacturing process units within a group that are covered by the pharmaceuticals MACT may comply with those standards even if a PAI is the primary product of the group. This provision is included because the pharmaceuticals rule does not have a provision that would allow an owner or operator to comply with the PAI rule while producing a pharmaceutical product when the primary product of the group is a PAI. However, two provisions in the pharmaceuticals rule are not applicable when producing a PAI. First, the process vent emission limit of 0.15 Mg/yr in the PAI rule applies instead of the 2,000 lb/yr limit in the pharmaceuticals rule because the 2,000 lb/yr cutoff would not be consistent with the MACT floor for PAI process vents. Second, the owner or operator of a new source that will produce PAI's as well as pharmaceuticals must comply with all of the requirements regarding application for approval of construction or reconstruction in § 63.5 of the General Provisions; the exclusions in § 63.1259(a)(5) of the pharmaceuticals rule do not apply. Again, EPA believes this change is necessary to avoid disparate treatment of PAI producers. The fourth option was selected because it simplifies compliance by allowing an owner or operator to comply with only one regulation for a process unit group. It accomplishes this goal without sacrificing emission reductions because the requirements of the rules are similar.

It also does not require that an existing regulation be amended.

Under the fourth option, the primary product of a group is defined as the product (e.g., a PAI, pharmaceutical, HON chemical, or currently unregulated chemical) with the highest estimated operating time or total production rate for the 5 years after the compliance date for today's final rule or after startup of the process unit group, whichever is later. The owner or operator proposes the number of groups and the boundaries of each group based on site-specific operation, but a group may only include equipment that is or may be used with equipment that is used to produce a PAI (i.e., some equipment must overlap between the PAI process unit and some other process unit for all equipment in both process units to be part of the same group).

c. *Primary Use.* Two commenters believe the rule should only apply to production of materials that are primarily intended to be used as PAI's. One of the commenters noted that for some chemicals registered as PAI's, only a small percentage of the total product is sold for use as a PAI.

Since proposal, EPA has evaluated four options for determining applicability of process units that produce a product for use both as a PAI and other purposes. Option 1 is to require no primary use determination (i.e., no change from proposal). Option 2 is to list, in the rule, compounds that are registered as PAI's but that would not be subject to the rule based on determinations that their primary use nationwide is not as a PAI. Option 3 is to require site-specific determinations of primary use. Option 4 is to list, in the rule, all PAI's that are subject to the rule.

Option 1 would encompass the most process units and would therefore achieve the greatest environmental benefit. The EPA rejected this option, however, because it could result in inequitable regulatory treatment of a given type of process unit. For example, one facility might produce a compound for multiple purposes, including a small amount for use as a PAI, but other facilities produce the same compound exclusively for other purposes. Under this option, only the facility producing a small amount of the compound for use as a PAI would be subject to the rule even though otherwise identical to the other facility.

Under option 4, a list of PAI's subject to the regulation would be included in the regulation. Compounds for which the primary use is the collective non-PAI purposes would be excluded from the list. This option was rejected because it would not accommodate changes in the industry. This is a dynamic industry with new compounds being developed and registered as PAI's every year. Between 1984 and 1995, the industry added an average of 14 new compounds per year, although not all of these new compounds would meet the definition of organic PAI subject to regulation under this rule. As a result, updating the list every year would be impractical. Another disadvantage to this option is that EPA's pesticide reregistration process is not yet complete. Presumably, compounds with incomplete evaluations would be included on the list. The list then would have to be amended periodically to delete compounds whose registrations are canceled.

Option 2 was rejected because, like option 4, it would not automatically accommodate changes in the industry; the rule might have to be amended periodically to exempt new compounds that are primarily used for non-PAI purposes. Another concern with option 2 is that it would be difficult to ensure that the list is accurate and complete.

The final rule adopts option 3, which requires site-specific determinations of primary use. This option was selected for several reasons. First, this approach is likely to result in a given process being subject to only one, most appropriate regulation because EPA is not aware of any compounds for which the primary use is as a PAI for one facility but not others. Furthermore, EPA does not expect the primary use at a given facility to vary. However, if the primary use changes to non-PAI purposes, today's final rule will still apply to the process unit (based on EPA's "once-in, always-in" policy); if the primary use changes to a PAI, today's final rule will apply only if the process unit is not already subject to the HON. A second advantage of this option is that it automatically accommodates new compounds that are developed in the future, and existing compounds that are found to have a pesticidal application. A third advantage is that minimal additional recordkeeping and reporting is required. Manufacturers are required under FIFRA to record and report the annual production of each PAI that they produce; today's final rule requires that they also record and report the total production to demonstrate that the compound is produced primarily for non-PAI purposes. Finally, the pharmaceuticals rule provides a recent precedent for including a primary use provision.

The final rule incorporates the primary use concept in the definition of PAI process unit. Specifically, a process unit is considered to be a PAI process unit if more than 50 percent of the material produced is used as a PAI or integral intermediate. The primary use is determined based on the projected annual production from the process unit in the 3 years after June 23, 1999 or startup, whichever is later.

3. Recovery Devices

One commenter requested that EPA clarify the applicability of recovery devices that are used for multiple processes when the recovered material from a PAI process is used in a non-PAI process. In the proposed rule, the term recovery device had the same meaning as in the HON, but it should have been used only in connection with the wastewater provisions. The MACT floor for process vents is based on the concept that certain condensers are part of the process (i.e., process condensers) and any other add-on devices are considered to be control devices; the concept of recovery devices as in the HON does not apply to process vents. For the final rule, the term recovery device has been revised to include only devices used with water streams, and to specify that equipment based on gravity separation may be a recovery device only if all of the inlet streams are two-phase liquid streams. The material recovered in a recovery device may be used in any process, including non-PAI processes.

4. Intermediates

Under the proposed rule, the affected source would include manufacturing of any intermediate that is integral to a PAI production process and for which more than 50 percent of the annual production of the intermediate is used in the on-site production of PAI's. An integral intermediate process was defined as a process manufacturing an intermediate that is used in the onsite production of PAI's and is not removed to storage before being used to produce the PAI(s). An intermediate was defined as a compound produced in a chemical reaction that is further processed or modified in one or more additional chemical reactions to produce a PAI. The proposed rule would also allow an owner or operator to elect to include production of the following intermediate processes in the affected source: (1) Integral intermediates for which less than 50 percent of the intermediate is used in the onsite production of PAI's and (2) isolated intermediates. "Isolated intermediates" were defined as intermediates that are removed to storage before being used in the on-site production of PAI's.

Several commenters addressed the definitions of different types of intermediates and their inclusion in the definition of affected source. One commenter recommended editorial changes to clarify the meaning of affected source. Another commenter stated that the term "isolated intermediate" should not be used because it has a different meaning under Toxic Substances and Control Act (TSCA), and different definitions for the same term would cause confusion. Another commenter stated that the rule needs to include a definition for "storage" to clarify which intermediate processes are integral. Other commenters believe the proposed rule combined integral intermediate production with PAI production in a single process, which, as described further in section VI.C.1, differs from the approach used to develop the MACT floor.

The intent of the proposed rule was to consider each integral intermediate process to be a separate process within the affected source, and to allow the owner or operator to elect to include any other intermediate process in the affected source. To improve the clarity of these provisions, EPA made several changes in the final rule. The first change was to include the production of integral intermediates in the definition of the new term "PAI process unit," as described in section VI.A.2.a. This change clarifies that production of each integral intermediate is a separate process unit. The second change was to delete the term "isolated intermediate" to eliminate possible confusion with the term as it is defined under TSCA. The impact of this change was minimal because the term was only used in the proposed rule to describe intermediates that are not integral intermediates. The third change was to replace the term "integral intermediate process" with the term "integral intermediate" and change the definition to mean an intermediate for which 50 percent or more of the annual production is used in the onsite production of one or more PAI's and is not stored before being used in the production of another integral intermediate or the PAI(s). For the purposes of this definition, an intermediate is stored if it is discharged to a storage vessel and at least one of the following conditions is met: (1) The processing equipment that discharges to the storage vessel is shutdown before the processing equipment that withdraws from the vessel is started up; (2) on average, the material is stored in the storage vessel for at least 30 days before being used to make a PAI; or (3) the processing equipment that discharges to the storage vessel is located in a separate building or processing area of the plant than the processing equipment that uses material from the storage vessel as a feedstock, and control equipment is not shared by the two processing areas. Processes that satisfy any of these conditions are considered to be significantly distinct and separate. The fourth change was to clarify the provisions allowing the owner or operator to elect to include any intermediate process in the affected source. The final rule specifies that an owner or operator may elect to designate production of any intermediate that does not meet the definition of integral intermediate (and is not otherwise exempted) as a PAI process unit in the affected source. See section VI.C.1 for a discussion of integral intermediates in the development of the MACT floor.

5. Determining New Source Status

Under the proposed rule, an addition of PAI manufacturing operations at an existing plant site would be subject to the requirements for a new source if it had the potential to emit 10 tons/yr or more of any HAP or 25 tons/yr or more of any combination of HAP, unless the Administrator establishes a lesser quantity at a plant that currently is an affected source. Two commenters questioned whether this meant that a source with minor actual emissions but major potential to emit could elect to accept a federally enforceable "synthetic minor" operating permit with an emission limit below the 10 and 25 tons/yr cutoffs, and thereby avoid the new source requirements for process vents, storage vessels, and wastewater.

The new affected source provisions have been revised for the final rule. As noted above, the term "PAI manufacturing operations" has been removed from the final rule. The phrase "unless the Administrator establishes a lesser quantity at a plant that currently is an affected source" is not included in the final rule because this statement is redundant with section 112(c)(1) of the CAA, and the term "addition" was determined to be ambiguous. To address these concerns, the final rule specifies that new source requirements apply to an affected source for which construction or reconstruction commenced after November 10, 1997, or to any single PAI process unit that meets the following conditions: (1) It is not part of a process unit group; (2) construction commenced after November 10, 1997; and (3) it has the potential to emit 10 tons/yr of any one HAP or 25 tons/yr of combined HAP. Thus, if an owner or operator elects to accept federally enforceable conditions that limit the potential to emit for a single PAI process unit that is added to an existing facility to levels below these thresholds, the PAI process unit would be subject to existing source standards, not new source standards.

6. Startup, Shutdown, and Malfunction

For batch processes, the proposed rule would require an owner or operator to comply with the provisions in the rule during periods of startup and shutdown; periods of malfunction would be regulated according to § 63.6 of the General Provisions. For continuous processes, the proposed rule specified that only § 63.6 of the General Provisions would apply during periods of startup, shutdown, and malfunction.

One commenter agrees that routine startups and shutdowns between batches should be covered by the rule, but stated that it should not apply during other startups and shutdowns because normal emission control techniques may be inappropriate or ineffective during those times. According to the commenter, some of the other situations include (1) initial startup of a process unit, (2) startup after a malfunction or an extended period of nonoperation, and (3) shutdowns due to a malfunction. The commenter explained that during initial startup, control devices and monitoring systems need to undergo "shakedown" and debugging, and may need time to reach their full efficiency. After an extended downtime, process equipment also will need time to get back to normal operating conditions, and control devices will need to reach operating temperatures or equilibrium. Although the commenter understands that the proposed rule would not apply during malfunctions, the requirements during a shutdown associated with the malfunction were not clear.

The commenter also stated that the final PAI MACT standards should not incorporate § 63.6(e) of the General Provisions for four reasons. First, the requirement in § 63.6(e)(3)(i)(A) to minimize emissions "at least to the levels required by all relevant standards" is ambiguous. Second, the General Provisions do not address shutdowns of compliance equipment such as control devices. Third, the General Provisions do not address startups, shutdowns, and malfunctions that affect only a portion of the process. Fourth, the General Provisions do not say how to deal with periods of nonoperation. To address these concerns, the commenter recommended that the rule have self-contained startup,

shutdown, and malfunction provisions patterned after those in the HON.

Another commenter recommended that EPA consider revising the rule to allow batch processes with air pollution control equipment to comply with the startup, shutdown, and malfunction requirements in § 63.6(e) of the General Provisions. The commenter explained that operating practices for controls used with batch processes are the same as those for controls used with continuous processes; for both types of processes, operators verify that all control equipment is on-line and functioning properly to minimize emissions at all times (consistent with § 63.6(e)(1)(i) of the General Provisions). Furthermore, the commenter stated that maintenance and corrective actions after a malfunction of a control device are the same for both batch and continuous processes. Therefore, the commenter recommended that EPA consider revising the rule to include the following language: "For batch processes with air pollution control equipment, startup, shutdown, and malfunction shall be regulated according to § 63.6 of subpart A of this part. For batch processes without air pollution control equipment, the provisions of this subpart shall apply during startup and shutdown, and periods of malfunction shall be regulated according to § 63.6 of subpart A of this part."

The EPA has reconsidered the applicability of the rule during periods of startup and shutdown and determined that the requirements of the rule should not be applied under certain situations for batch processes as well as for continuous processes. For batch processes, these situations include initial startups of new or reconstructed processes, and shutdowns that are not part of intended operation (e.g., for maintenance, replacement of equipment, or other repair, possibly as a result of a malfunction). These are times when the operators may be unfamiliar with the equipment operation or it may not be possible to follow standard operating procedures. However, a startup after maintenance, after switching to a product that has been produced in the past, or the startups between batches during a campaign are all routine, normal operating conditions that should result in the same emissions profile. Similarly, shutdown at the end of a campaign, between batches, or for planned, preventive maintenance are all normal operations with the same emissions profile. Conversely, for continuous processes, startup and shutdown for any reason results in operation under conditions different from the normal steady-state operation. To account for these differences between batch and continuous processes, the final rule provides definitions for startup and shutdown that differ from the definitions in the General Provisions. Specifically, the following definitions have been added to the rule:

Startup means the setting in operation of a continuous PAI process unit for any purpose, the first time a new or reconstructed batch PAI process unit begins production, or, for new equipment added, including equipment used to comply with this subpart, the first time the equipment is put into operation. For batch process units, startup does not apply to the first time the equipment is put into operation at the start of a campaign to produce a product that has been produced in the past, after a shutdown for maintenance, or when the equipment is put into operation as part of a batch within a campaign. As used in § 63.1363, startup means the setting in operation of a piece of equipment or a control device that is subject to this subpart.

Shutdown means the cessation of operation of a continuous PAI process unit for any purpose. Shutdown also means the cessation of a batch PAI process unit or any related individual piece of equipment required or used to comply with this part or for emptying and degassing storage vessels for periodic maintenance, replacement of equipment, repair, or any other purpose not excluded from this definition. Shutdown does not apply to cessation of a batch PAI process unit at the end of a campaign or between batches (e.g., for rinsing or washing of equipment), for routine maintenance, or for other routine operations.

The EPA has also clarified in the final rule that the provisions can apply to processing equipment, as well as control, monitoring, and recordkeeping equipment. Additionally, in response to the commenter's concerns regarding ambiguity of the General Provisions, EPA has replaced the reference to the General Provisions with language from the HON that specifically clarifies applicability of provisions during startup, shutdown, and malfunction events.

7. Overlap With Other Standards

Several commenters stated that, in addition to the exemptions provided in the proposed rule, the rule must also address overlap with other regulations. Commenters identified potential overlap with new source performance standards (NSPS) in 40 CFR part 60 (e.g., subparts Kb, III, NNN, and RRR), NESHAP in 40 CFR part 61 (e.g., subparts BB, FF, and G), and RCRA equipment leak requirements. The commenters suggested using language similar to that in § 63.110 of the HON for provisions dealing with process vents, storage vessels, and wastewater and language from § 63.160(b) through (d) to address overlapping provisions that deal with equipment leaks.

The EPA agrees with the commenters that the rule must address overlap with other regulations. The final rule includes language similar to that in § 63.110 of the HON, thus addressing the overlap with NSPS requirements for storage vessels in subpart Kb of 40 CFR part 60 and RCRA requirements in 40 CFR parts 260 through 272. The EPA also added a provision specifying that an owner or operator subject to both this rule and the equipment leak requirements in subpart I of 40 CFR part 63 may elect to comply with the requirements of either rule.

The requirements in NSPS subparts III, NNN, and RRR apply to individual vents, whereas the process vent standards in today's final rule apply to the sum of all process vents within a process. As a result, a facility generally must comply with both today's final rule and any applicable NSPS. One exception is provided in the final rule. If an owner or operator elects to reduce emissions from a process vent by 98 percent (or implement an equivalent control option), then the owner or operator is required to comply only with the provisions of today's final rule.

The final rule does not address overlap with NESHAP in 40 CFR part 61. Subparts BB and FF regulate emissions from benzene production, which, because it is subject to the HON, is not subject to today's rule. Subpart G is reserved and also is not covered in § 63.110 of the HON.

B. Compliance Dates for New Sources

Several commenters addressed the provision in the proposed rule that would require new sources to be in compliance upon startup. One commenter believes the provision should be revised to require compliance by initial startup or the promulgation date of the rule, whichever is later. Other commenters believe EPA should either allow new sources a period of up to 6 months to complete any required testing after startup, or change the definition of startup to stipulate that startup is not complete until all required performance testing is complete, and that this testing must be completed no later than 6 months after steady state production for continuous processes, or

until 6 months after a successful batch production run has been completed.

A provision requiring that new sources be in compliance by initial startup or the promulgation date, whichever is later, is consistent with other MACT standards and has been added to the final rule.

The EPA does not believe that the compliance date needs to be changed to accommodate required emissions testing. Under the proposed rule, an owner or operator would be required to submit the Notification of Compliance Status report no later than 150 days after the compliance date (i.e., startup for a new source). This requirement is consistent with other MACT standards (e.g., the HON, Polymers and Resins (P&R) I, and P&R IV), and it is nearly the requested 6 months after the compliance date. Furthermore, much of the required work (e.g., the emissions profile) may be completed before the compliance date. The amount of time needed to reach steady state production or to complete a successful batch production run should not be greater in this industry than in other chemical production industries. Therefore, the final rule retains the provision to submit the Notification of Compliance Status report no later than 150 days after the compliance date.

C. Process Vent Provisions

1. MACT and MACT Floor

Several commenters requested that sources be able to use process vents meeting the criteria for 98 percent control in determining 90 percent overall process control requirements. Commenters stated that the EPA determined that the MACT floor was 90 percent on a processwide basis and excluding these vents increases the stringency of the floor.

The MACT floor was determined to be 90 percent control for process vents at existing sources. In addition to the MACT floor, the EPA is required to develop regulatory alternatives beyond the floor and to select MACT based on the cost effectiveness of these alternatives. A regulatory alternative was developed that would require 98 percent control efficiency for specific vents that meet the flow and annual uncontrolled emissions criteria described in § 63.1362(b)(2)(iii); and would require 90 percent control efficiency for the sum of emissions from all other vents within the process. The cost of the regulatory alternative was judged to be acceptable, and this alternative was selected as MACT. The EPA agrees that this requirement is more stringent than the floor. If a vent that must be controlled to 98 percent is included in determining 90 percent control for all process vents within the process, the owner or operator would only be complying with the MACT floor, not the more stringent regulatory alternative. Thus, the final rule does not allow an owner or operator to use process vents that are subject to the 98 percent control requirement when determining compliance with the 90 percent overall control level.

Two commenters perceived an inconsistency that they believe should be resolved. The commenters pointed out that in the proposed standards, integral intermediate processes are combined with PAI processes to define a single "process," but they were evaluated separately in the MACT floor analysis. One commenter further noted that this change would result in an increase in the applicability cutoff of the MACT floor because part of the emissions from an intermediate process should be combined with the active ingredient process with the lowest uncontrolled emissions that were used to establish the applicability cutoff of 0.15 Mg/yr.

The discussion in section VI.A.4 explains that the intent in the proposed rule was to consider production of integral intermediates and active ingredients to be separate processes. As the commenters noted, this is also the approach used to develop the MACT floor. However, in reexamining this approach since proposal, EPA realized that some of the active ingredient processes at the surveyed facilities included production of intermediates; in addition, some of the reported intermediate processes may satisfy one of the criteria for storage and thus not be integral intermediates. If all of the intermediates are integral intermediates, the floor would increase to 92 percent. If none of the intermediates are integral intermediates, the floor would decrease to 88 percent. Thus, EPA considers the proposed floor of 90 percent control to be appropriate. The applicability cutoff also is unchanged because the active ingredient production and intermediate production are not combined into a single PAI process unit.

Several commenters requested that the definition of a Group 1 process vent be revised to include an uncontrolled emissions concentration cutoff of 50 ppmv and a flow rate cutoff of 0.005 standard cubic meters per minute. Several commenters also requested changing the applicability cutoff in this definition. Some commenters suggested the applicability cutoff should be based on "total resource effectiveness," as in the HON. The commenters asserted that these changes would provide incentives for sources to implement pollution prevention practices.

Some commenters suggested raising the applicability cutoff to 2,000 lb/yr to be consistent with the cutoff in the proposed pharmaceuticals rule; the commenters asserted this change was needed because the amount of available data on PAI processes was limited. Another commenter suggested raising the applicability cutoff to 10,000 lb/yr because this is the minimum value that was determined to be cost effective in the Batch Processes Alternative Control Techniques (Batch ACT) document. One commenter requested either a higher threshold for a process as a whole or for the individual process entities that comprise the Captan® process.

One commenter also noted that in many cases, controls on processes with small HAP emissions were added to control odors or VOC. The commenter disagreed with EPA's assertion during Partnership Group meetings that the CAA does not allow the Agency to consider the reason controls were added. The commenter states that there is no statutory limitation on how EPA defines "affected source"; for example, EPA has already provided exclusions in § 63.1360, and a higher applicability cutoff could be another.

The EPA disagrees with the suggestions to change the definition of "Group 1 process vent" because these changes would be inconsistent with the MACT floor. The suggested concentration and flow rate cutoffs are inconsistent because the MACT floor was based on the sum of emissions from all vents within a process, not the characteristics of an individual vent. However, for the final rule, EPA did change the definition of "process vent" to exclude streams with HAP concentrations less than 20 ppmv. Although concentration data are not available from the surveyed plants, streams with such low concentrations are likely to be uncontrolled because 20 ppmv is considered to be the practical limit of control (Docket No. A-79-32, Docket item No. II-B-31). Furthermore, such streams are likely to have low annual emissions and, thus, have little impact on the applicability determination for a process.

The EPA attempted to collect information on the best controlled facilities in the PAI industry; EPA believes that the best controlled facilities are contained in its PAI data base and that the processes contained in the data base are representative of the industry. Based on the PAI data base, many processes with uncontrolled emissions that were significantly less

than the cutoffs mentioned by the commenters were controlled to levels of 90 percent or greater. Because the emission cutoffs mentioned by the commenters were not supported by the process vent data, these cutoffs would not have been defensible because they would have been less stringent than the cutoff prescribed by the MACT floor.

Regarding the comment that the cutoff for processes is not cost effective and that other cutoffs that have been demonstrated as cost effective should be provided, EPA notes that there is no provision in the amended CAA for consideration of cost-effectiveness in setting the MACT floor. Therefore, it is conceivable that the standards, which are set based on the practices of the industry, will require a level of control that is greater than what was determined to be cost-effective for other CAA programs. For example, the 10,000 lb/yr cutoff contained in the draft Batch ACT that was referenced by the commenters was intended to simplify applicability of presumptive reasonably available control technology (RACT) control measures, which are applied to the reduction of criteria pollutants (in this case, VOC) and can include the consideration of cost effectiveness.

Finally, the amended CAA contains no provisions for considering reasons why certain processes are controlled and others are not when determining the group of sources that will make up the best 12 percent of the source category. Therefore, the issue of facilities controlling HAP for odor control or other purposes is not a consideration in setting the floors.

One commenter asserted that the applicability equation used to determine which vents must be controlled to 98 percent is inappropriately applied to batch processes. The commenter explained that the flow rate used in the computer model to develop the 98 percent applicability regulatory alternative in the Batch ACT is a constant flow rate, which is inconsistent with batch processing.

In the Batch ACT, EPA developed costs for an incinerator to estimate the cost effectiveness of controlling emissions from batch process vents. Although flow rates from batch processes vary, the control device must be capable of handling the maximum flow rate possible. Therefore, the incinerator was sized and costed for the maximum flow rate, even though venting from batch processes will include periods of lower flow rates.

2. HCl Standards

Two commenters expressed concern that EPA's approach to determining the MACT floor for the HCl emission limit criteria (e.g., the 6.8 Mg/yr cutoff) in the proposed rule considers only a limited number of process vents emitting HCl which may not be representative of the entire source category. The commenters recommend that EPA consider setting the HCl cutoff for existing sources at least as high as the average of the two lowest HCl emission rates from controlled processes at the MACT floor facilities (i.e., (6.8 Mg/yr + 11.0 Mg/yr)/2 = 9.0 Mg/yr), or that the control device for the process vent emitting HCl meet a minimum 90 percent efficiency if installed and in operation before November 7, 1997. (Note: EPA assumes the commenter meant the proposal date of November 10, 1997.) The commenters believe these changes will improve incentives for pollution prevention, and that allowing 90 percent control would reduce the cost burden on existing facilities because retrofitting to achieve an incremental improvement in control is very expensive.

The EPA disagrees with the commenters that the proposed cutoff for HCl emissions is inappropriate. As described in the Basis and Purpose document and summarized below, EPA believes the cutoff of 6.8 Mg/yr is a very clear and obvious breakpoint. Also, even though the MACT floor plants have fewer processes with HCl emissions than organic HAP emissions, this is representative of the industry as a whole. Thus, one would expect that the HCl floor would be based on less data than the floor for organic HAP emissions. The EPA also notes that if the floor were determined by evaluating the best controlled processes throughout the industry rather than the processes at the best performing 12 percent of existing facilities, that the applicability cutoff might be lower than 6.8 Mg/yr. It certainly would not be higher.

To develop the MACT floor for the proposed rule, all of the processes at the nine MACT floor facilities were ranked by uncontrolled HCl emissions. All processes with uncontrolled emissions below 6.8 Mg/yr were uncontrolled, and processes with higher emissions were controlled to various levels. Therefore, the MACT floor was determined to be no control for processes below this threshold and 94 percent for processes above it.

The EPA believes there is no basis for setting a cutoff at 9.0 Mg/yr or for setting a control level of 90 percent for control devices installed before November 10, 1997. Because the MACT floor consists of both a control efficiency and a cutoff, the cutoff cannot be changed independently of the control efficiency. A cutoff of 9.0 Mg/yr would be inappropriate because it is not associated with the determined MACT floor control efficiencies. Furthermore, it would not make sense to include one controlled process (i.e., the process with emissions of 6.8 Mg/yr) with all of the uncontrolled processes; this is a very clear and natural cutoff. If the standard were based on an alternative more stringent than the floor, the rule might allow emission points that are already controlled to the level of the MACT floor to comply with that level (as was done for organic emissions from process vents). However, there is no basis for a 90 percent control level, regardless of the installation date, because the 94 percent control level for HCl is the MACT floor. Finally, the EPA recognizes that the incremental cost effectiveness will be high for a facility with control just below the required level. However, this would be true no matter where the level was set.

Other commenters stated that the HCl standards for new sources should be set at 99 percent removal for consistency with the HON requirements. One commenter stated that since there is no actual test data from the pesticide manufacturing industry demonstrating a 99.9 percent removal of HCl, a change to 99 percent would provide consistency with HON rule requirements.

The EPA agrees with the commenters. The proposed control level was based on a value reported by a surveyed facility. This value was not supported by test data or other documentation. However, a control level of at least 99 percent is likely for this scrubber because HCl control levels of 99 percent are widely accepted as achievable by scrubbers, and several other facilities reported this level. Therefore, for the final rule, the required control level for new sources has been changed to 99 percent. Although being consistent with the HON is not a priority, this change, as one commenter observed, does make the two rules consistent.

3. Surge Control Vessels and Bottoms Receivers

One commenter opposes the proposed requirement to regulate surge control vessels and bottoms receivers as process vents because it introduces a third way to regulate such emissions under the MACT standards. The commenter would prefer that these emissions be regulated as equipment leaks, as under the HON. If that is not acceptable, the commenter's second choice is to regulate the emissions as storage vessels, as under Polymers & Resins IV. The commenter believes that additional inconsistency is confusing and likely to

lead to inadvertent compliance mistakes.

The EPA notes that there is essentially no difference between regulating emissions from these equipment as "equipment leaks" (as in subpart H) versus as "storage vessels" (as in subpart G). Both the applicability and control requirements for these sources in the HON are identical. The reason EPA departed from this approach in the proposed (as well as the pharmaceuticals rule) rule is that surge control vessels and bottoms receivers typify the processing equipment, in capacity and function, found in the PAI and pharmaceuticals industries. Especially in the case of batch processing (where the HON does not regulate process vents), the characteristics of emission streams from these equipment are not significantly different than any other equipment. Emission streams from bottoms receivers and surge control vessels result from the displacement of saturated gases from incoming materials. Displacement emissions are very common in both the pharmaceuticals and PAI industries. Therefore, EPA decided to regulate them in a manner consistent with the remainder of processing equipment found in these industries.

In response to the commenter's concern about possible confusion from the inconsistent application of requirements across different source categories, EPA believes that the consistent treatment described above will actually eliminate a great deal of confusion in the implementation of the rule, because all equipment associated with a process will be treated in the same manner, and the control requirements, which are process based, can be evaluated over all equipment in the process. Additionally, because of the similarities of these equipment with other process vessels, the confusion related to defining a surge control vessel or bottoms receiver from another process vessel will also be averted.

D. Storage Vessel Provisions

1. MACT Floor

Under the proposed rule, the MACT floor for storage tanks consisted of applicability cutoffs and a control efficiency for tanks that exceeded the cutoffs. To develop the floor, the storage tanks at the best performing 12 percent of facilities (the "MACT floor facilities") were ranked by decreasing uncontrolled emissions. The tanks were divided into two groups based on an uncontrolled emissions cutoff below which the median control efficiency was no control. The median control efficiency below 108 kg/yr was no control; the median control above the cutoff was 41 percent. A tank size cutoff was established at 38 cubic meters (m^3) based on the smallest tank with uncontrolled emissions greater than 108 kg/yr that was controlled at least to 41 percent. For new sources, the smallest tank with the best level of control was determined. The floor for new sources was determined to be 98 percent control efficiency for storage vessels with capacity of 26 m^3 or greater and uncontrolled emissions of at least 0.45 kg/yr.

One commenter stated that the control levels originally provided by the commenter for two storage vessels are inaccurate due to incorrect coolant temperatures used by the commenter. The commenter stated that the impact of this change is that the existing source MACT floor based on the median control level for tanks with uncontrolled emissions greater than 108 kg/yr becomes 21 percent, instead of 41 percent. Another commenter stated that MACT floor should be revised to include consideration of vapor pressure of the stored HAP to be a primary parameter.

The EPA has corrected the control efficiencies for each of the storage vessels mentioned by the commenter. The EPA also reexamined the data base since proposal and removed several vessels that should not have been included because they do not meet the definition of storage vessel. Changes to the storage vessel data base, and changes to the MACT floor and the final standard that are summarized below are discussed in the memorandum "Explanation of Options for Reevaluating the Storage Tank MACT Floor for the Production of Pesticide Active Ingredients NESHAP," (Docket A-95-20, Docket item No. IV-B-2).

The proposed approach to developing the MACT floor for storage vessels was significantly different than the approach used to develop the floor for other rules (e.g., the HON, polymers & resins, and pharmaceuticals). Since proposal, EPA has reevaluated the revised data base and determined that an approach consistent with that used for the other rules is feasible and appropriate for this rule. One of the commenters also recommended that the floor include vapor pressure cutoffs as in other rules. As a result, EPA decided to revise the MACT floor. The revised approach established vapor pressure cutoffs at the same storage vessel capacity cutoffs and control efficiency cutoffs as were used in the previous rules. Specifically, the approach examined storage vessel cutoffs at 38 m^3, 75 m^3, and 151 m^3. (In English units, these capacities correspond with 10,000 gallons [gal], 20,000 gal, and 40,000 gal, respectively, and the data base includes at least one storage vessel at each of these sizes.) Within these size ranges, the vapor pressure cutoff at which the majority of storage vessels were controlled to 95 percent or more was determined; the 95 percent level is consistent with the efficiency of floating roofs, which are the most cost effective controls.

Under the revised approach, at liquid vapor pressures of 3.45 kPa and higher, the median control efficiency was found to be at least 95 percent in both the 75 m^3 and larger range and the 151 m^3 and larger range; at all vapor pressures, the majority of storage vessels with capacities smaller than 75 m^3 were found to be uncontrolled. The vapor pressure of 3.45 kPa is the vapor pressure of toluene, which is the predominant HAP in the industry and the most common organic HAP stored in storage vessels. Therefore, the revised MACT floor for storage vessels at existing sources was determined to be 95 percent control for storage vessels with a capacity greater than or equal to 75 m^3 that store material with a vapor pressure greater than or equal to 3.45 kPa. In addition, the MACT floor was determined to be no control for all storage vessels with a capacity less than 75 m^3.

The MACT floor for storage vessels at new sources is based on the best controlled storage vessel. As discussed above, the best level of control for storage vessels is considered to be 95 percent. The capacity of the smallest vessel controlled to 95 percent was determined to be 40 m^3, and the vapor pressure of the compound stored in this vessel was 16.5 kPa. The MACT floor for new sources must be at least as stringent as the floor for existing sources. Therefore, the MACT floor for new sources is 95 percent control for storage vessels with (1) a capacity of 40 m^3 or greater that store material with a vapor pressure of 16.5 kPa or greater and (2) a capacity of 75 m^3 or greater that store material with a vapor pressure of 3.45 kPa or greater.

2. Standard

Under the proposed rule, one regulatory alternative more stringent than the floor was developed. The regulatory alternative would require 95 percent control of storage vessels with capacity of 75 m^3 or greater that have uncontrolled emissions of 108 kg/yr or greater. Storage vessels smaller than 75 m^3 (and greater than 38 m^3) that have uncontrolled emissions of 108 kg/yr or

greater would require control to the floor level (41 percent). This regulatory alternative was determined to be cost effective. Therefore, the proposed standard for storage vessels at existing sources was established at 95 percent control for vessels with a capacity greater than or equal to 75 m^3 that have uncontrolled emissions greater than or equal to 108 kg/yr. No regulatory alternatives more stringent than the MACT floor were developed for storage vessels at new sources. Therefore, the proposed standard for storage vessels at new sources was determined to be 98 percent control efficiency for storage vessels with a capacity of 26 m^3 or greater with uncontrolled HAP emissions of at least 0.45 kg/yr.

Several commenters requested that EPA increase the lower emission cutoff for existing and new storage vessels. Most commenters recommended increasing it to at least 227 kg/yr; this level corresponds to the level in the Batch Processes ACT document for which manifolding to an existing control device was shown to be cost effective. One commenter suggested adding an exemption in § 63.1360(d)(4) for such storage vessels. Several of the commenters also noted that combustion would be the only feasible means of controlling HAP emissions of only 0.45 kg/yr, and that secondary emissions would increase significantly as a result.

The Agency has determined that including the higher cutoff suggested by the commenter would have been less stringent than the cutoff prescribed by the MACT floor. The emission cutoffs mentioned by the commenters are not supported by the storage vessel data base.

Since proposal, a different method for estimating the MACT floor has been incorporated (as discussed above). The revised MACT floor uses storage vessel capacity and the vapor pressure of stored material as the parameters for determining applicability for storage vessels, and no uncontrolled emissions cutoff is included in the floor. The Agency expects that implementing standards based on this format will be considerably easier than implementing the proposed standards, because no ongoing emission tracking will be required to demonstrate compliance with the standard. Use of these parameters is consistent with requirements for storage vessels in other rules.

Two commenters stated that the minimum applicability size cutoff for existing Group 1 storage vessels should be changed to correlate with the NSPS subpart Kb size cutoff to simplify compliance. The commenters stated that the cutoff for storage vessels at existing sources would change from 38 m^3 to 40 m^3. In addition, the commenters pointed out that the 38 m^3 cutoff is below the smallest storage vessel controlled to the median control efficiency in the study (i.e., 39 m^3).

For the final rule, EPA based the standards for new and existing sources on the MACT floor because the cost to go beyond the floor was determined to be unreasonable. As a result of the changes to the database discussed above, the capacity cutoffs in the final rule are higher than the cutoffs suggested by the commenters. For existing sources, the cutoff is 75 m^3 instead of the 40 m^3 suggested by the commenters. For new sources, the cutoff is 40 m^3 instead of the 39 m^3 suggested by the commenters.

One commenter pointed out that in both the definitions of Group 1 Storage Vessel (§ 63.1361) and the standard (§ 63.1362), the conversion from metric units to English units are rounded off. The commenter requests that EPA provide a more precise conversion to English units. In an effort to reduce confusion over the conversion from English to metric units (or vice versa), only metric units have been included in the final rule.

One commenter requested that EPA keep the existing source standard for storage vessels with capacities greater than 75 m^3 the same as that for smaller storage vessels, unless floating roof technology is already in-place. The commenter asserted that the EPA's "beyond the floor" standard of 95 percent organic HAP control for existing "large" storage vessels is not justified for storage vessels that were not already equipped with floating roof technology. The commenter stated that EPA's assumption that any existing storage vessel larger than 75 m^3 can be cost-effectively retrofitted with a floating roof is unrealistic.

For the proposed rule, the MACT floor was based on a control efficiency of 41 percent. As discussed above, the revised MACT floor is based on 95 percent control. The final standards also are based on a control of 95 percent because the cost to control to a higher level was determined to be unreasonable. Now that both the MACT floor and the standard are based on the same control efficiency, the commenter's concern about going beyond the floor is no longer relevant.

Several commenters stated that EPA should allow floating roofs as a control option for storage vessels at new sources. Some of the commenters stated that it is possible to reduce emissions of some HAP by 98 percent using a floating roof, with the efficiency calculated using TANKS3, EPA's computer program to calculate VOC emissions from storage tanks.

As noted above, the control level for storage vessels at new sources is 95 percent under the final rule. Floating roof technology is allowed to meet this limit, just as it is for existing sources.

3. Routine Maintenance

Several commenters requested either an extension in the 240 hours per year (hr/yr) allowance for routine maintenance or greater flexibility in its application. One commenter suggested that EPA allow up to a 30-day extension for control devices (like RCRA incinerators) that require more than 10 days of maintenance per year, or allow a facility to compensate for longer downtime by overcontrolling at other times (this would also require a change in the compliance averaging period—see section VI.M.1). Other commenters recommended that the 240 hr/yr be allowed for each PAI process unit that is created using the non-dedicated equipment because maintenance may be required prior to each campaign. Alternatively, one commenter suggested that, based on standard maintenance work practices, the startup, shutdown, and malfunction requirements in subpart A of part 63 should be allowed in lieu of the proposed 240 hr/yr allowance. The commenter stated that the standard work practice for many companies is to isolate all equipment upstream of control devices where planned maintenance will occur to eliminate all safety hazards to personnel and minimize any impact to the environment. One commenter supported the provision, but suggested it be expanded to cover controls for waste management units, controls used on equipment leaks, and recovery devices (if applicable).

The proposed 240 hr/yr for planned routine maintenance was mistakenly applied to all control devices in the proposed rule; it should only have been applied to storage vessels. The startup, shutdown, and malfunction provisions prohibit the shutdown of control devices during operation; however, EPA recognizes that for storage vessels, it is impossible to "not operate" (i.e., not have breathing losses) during a period of time in which an add-on control device would be undergoing planned maintenance. Therefore, EPA has in the final rule allowed an amount of time in which the control devices for storage tanks only can be nonoperational due to planned routine maintenance. All other situations (i.e., those that require unplanned, emergency maintenance)

should be addressed through the startup, shutdown, and malfunction provisions. This change makes the final rule consistent with other MACT standards. The rationale for the 240 hr/yr allowance is that EPA determined that routine maintenance for certain control devices may require up to 10 days to complete, and because this timeframe is consistent with State permitting activities (see 59 FR 19441 for a more detailed discussion of this time allowance).

E. Equipment Leak Provisions

The proposed rule would have required compliance with the provisions of subpart H; this requirement was based on a regulatory alternative more stringent than the MACT floor. However, commenters contended that the data used to justify the program (e.g., the leak rates) were not representative of the PAI industry, and they supplied data which contain a sampling of LDAR program results from numerous types of facilities, including SOCMI and polymer and resins manufacturing facilities. These data indicate that initial equipment leak frequencies and, thus, the potential for emissions from leaking components, may be significantly lower than those assumed in the original development of subpart H. The commenters also contend that the monitoring costs were underestimated. One commenter cited the following specific examples based on a quote from a monitoring contractor: (1) initial and annual monitoring costs should be at least $4.50/component and $2.95/component, respectively, instead of $2.50/component and $2.00/component; and (2) labor costs should be at least $30.00/hr, not $22.50/hr.

In recent regulatory development efforts involving similar industries, EPA has generally found equipment leaks to be a significant source of emissions. In general, EPA's approach has been to require industries to identify leaks and fix them as soon as possible. The EPA is sensitive to the recordkeeping burden associated with an LDAR program for this industry and has strived to minimize the number of activities that have to be conducted and documented while still requiring sources to identify and eliminate equipment leaks. Relative to earlier rules, the Agency developed the HON to focus most of the recordkeeping and reporting burden on those processes and types of equipment that have the most significant leaks, in terms of HAP emissions. Since the development of the HON, the Agency has proposed the CAR that is designed to minimize the reporting and recordkeeping burden even further (63 FR 57748, October 28, 1998). The EPA believes that, in addition to consolidating many LDAR programs, the CAR addresses many concerns regarding the burden placed on industry to implement LDAR programs with little environmental benefit. The proposed CAR is specifically focused on identifying and fixing leaking components, and leaves out many of the recordkeeping requirements that are focused on nonleakers. Therefore, EPA decided to determine the impacts of a standard consistent with the LDAR program in the proposed CAR.

The EPA does not consider the emission estimates in the original analysis to be invalid. However, for the revised analysis, EPA used the leak rate data provided by the commenters and other recently obtained data to determine a lower bound on the baseline emissions (and a corresponding upper bound on cost effectiveness for a given set of assumptions regarding subsequent leak frequencies and the number of monitoring instruments that are needed). Most of the data provided by the commenters were from facilities in the SOCMI or polymers and resins industry. The EPA also combined recently obtained initial leak rate data for components in pharmaceuticals processes with the data provided by the commenters. These data were combined because EPA believes pharmaceuticals processes are at least as representative of PAI processes as are SOCMI or polymers and resins processes due to the prevalence of batch processing, similar process equipment, and similar HAP in the pharmaceuticals and PAI industries.

For the revised analysis, emissions and costs were estimated for the same two model PAI processes that were developed for the original analysis. Uncontrolled emissions for the model processes were estimated based on averages of the initial leak rates that were obtained from the commenters and for pharmaceuticals processes. Controlled emissions were estimated based on assumed average leak rates over a monitoring cycle after implementation of the provisions in the proposed CAR. For valves and connectors, the average leak rates were assumed to be equal to one-half of the performance level (i.e., one-half of 0.25 percent); for pumps, average leak rates were assumed to be equal to one quarter of the initial leak rates (i.e., one-half of the occurrence rate, where the occurrence rate is assumed to be equal to one-half of the initial leak rate).

Since proposal, EPA has reviewed the cost analysis and updated costs for the monitoring instrument. The original analysis was based on costs for a monitor that is no longer available. Capital costs for a currently available monitor that is widely used are higher than the capital costs in the original analysis, but maintenance costs are lower. As a result, the new monitor has a lower total annual cost. The EPA also reviewed the monitoring costs, repair costs, and other factors used in the costing methodology and determined that no changes were warranted. The EPA believes the contractor costs cited by a commenter are higher than the values used in the EPA analysis because they include overhead and capital recovery costs, whereas these are all separate cost items in the EPA analysis.

Two approaches were evaluated in the revised cost analysis. The first approach pro-rated the cost of the monitoring instrument based on the ratio of the number of components in the model processes to the number of components that a fully utilized instrument could be used to monitor (i.e., about 9,000 components). This approach assumes facilities will use a given instrument to monitor multiple PAI processes or PAI processes as well as other processes that also are, or will be, subject to similar LDAR requirements. The cost-effectiveness of the revised analysis was determined to be $1,400/Mg of HAP removed. A second, more conservative approach is to assume monitoring instruments are dedicated to the PAI process(es) at each facility. Thus, one instrument was assumed for facilities with less than 9,000 components, and two or more were assumed for surveyed facilities that have more than 9,000 components. This approach raises the cost-effectiveness to $1,800/Mg. Additional information about the revised cost analysis is provided in the docket (Docket A-95-20, Docket Item No. IV-B-3).

Because both of these cost effectiveness values are considered to be reasonable, EPA revised today's final rule to make it consistent with the CAR. This change makes the final rule consistent with the Agency's recent efforts toward consolidation of equipment leak requirements for air regulations. It also increases the focus on processes with leaking components by reducing the monitoring, recordkeeping, and reporting requirements for processes with nonleaking components.

Most of the changes since proposal involve the requirements for valves and connectors. These changes include: extending the monitoring period from once every four quarters to once every 2 years for process units with less than

0.25 percent leaking valves, adding provisions for valve subgrouping, extending the monitoring period for connectors with low leak rates, deleting both the quality improvement program implementation requirement and the credit for valves removed, and revising the calculations for determining the percentage of leaking valves. The Agency believes that the equipment leak requirements included in today's final rule greatly reduce the administrative burden associated with LDAR recordkeeping and reporting, and at the same time, result in a significant reduction in emissions. Based on the leak rates reported by the commenters, EPA believes the affected sources will be able to take advantage of the provisions extending the monitoring periods.

F. Wastewater Provisions

1. Maintenance Wastewater

Several commenters stated that maintenance wastewater streams should either be excluded from the regulation or subject to the same requirements as in § 63.105(b)(2) of the HON. All of the commenters cited the variability and unpredictable nature of maintenance wastewater streams (which makes it difficult to determine whether a stream is Group 1 or Group 2) and the low potential for substantial emissions (because such streams are typically due to rinsing or flushing equipment) as reasons to regulate maintenance wastewater differently. One commenter added that maintenance wastewater streams cannot be controlled like process wastewater streams. For example, the commenter explained that trying to pump the small amount of water generated when bleed lines or pumps are drained would cause equipment problems if there was not enough flow to keep material running through the pump itself. This commenter also stated that the cost to comply with conveyance requirements would be enormous, especially if an enclosed system has to be connected to every piece of equipment because a maintenance wastewater stream might be generated there.

The EPA considered the comments and is persuaded by the commenters' arguments that the variability of maintenance activities makes characterization of these wastewater streams difficult, and that there is fairly low potential for substantial emissions from most of these wastewater streams. However, EPA has no data on typical quantities of maintenance wastewater generated, or the characteristics of these wastewater streams. Therefore, EPA's approach in resolving this issue was to specify characteristics of maintenance wastewater streams that have significant emission potential. The EPA also sought to minimize the burden of characterization of all maintenance wastewater streams. Based on this approach, EPA evaluated three possible options for regulating maintenance wastewater. The first option was to adopt the same requirements as in § 63.105 of the HON, which is the option suggested by the commenters. The EPA believes that maintenance wastewater streams may warrant a different treatment in this industry than what was done under the HON because the PAI industry is expected to generate process wastewater streams in discrete batches, due to the batch nature of the industry. These process wastewater streams are expected to have properties similar to those for maintenance wastewater streams in terms of the quantities generated, the frequency of generation, and the options for management, suppression, and treatment. Therefore, for streams with significant emissions potential, whether generated because of maintenance activities or by the process operations, EPA believes that proper management and treatment is warranted.

The second option evaluated was to require the same management and treatment for both maintenance and process wastewater, as in the proposed rule. Under this option, the applicability thresholds are the same as in the HON for both types of streams. However, because information on maintenance wastewater streams is unavailable, it is not clear how many such streams would be subject to management and treatment requirements. In addition, it is possible that industry would be required to characterize numerous maintenance wastewater streams with no environmental benefit. Another concern with this option is the extent of dedicated maintenance wastewater conveyance systems that will need to meet emission suppression requirements on the chance that a Group 1 maintenance wastewater stream might be discharged in the processing area served by that part of the conveyance system. Because one of the applicability thresholds for Group 1 streams is 10,000 ppmw at any flow-rate, it is possible that there is a high potential for many maintenance wastewater streams to meet Group 1 applicability criteria. However, even though streams may be concentrated (e.g., greater than 10,000 ppmw HAP), the emission potential also depends on the quantity of water generated. Because the flow rate applicability criterion for 10,000 ppmw streams is unlimited, this option does not consider emission potential.

The third option considered and incorporated into the final rule is a modification of option 2 that does not require characterization, suppression, and treatment of small maintenance wastewater streams with low emission potential. The HON includes two thresholds for triggering Group 1 applicability: the first, which has already been discussed, captures any streams with greater than 10,000 ppmw HAP load and does not consider emissions potential; the second applicability threshold, however, considers emission potential by adding a quantity (greater than 10 L/min) in addition to the HAP concentration (1,000 ppmw HAP). When converted to a HAP load, the second applicability threshold is equivalent to approximately 5.3 Mg of HAP. This load was used as the applicability threshold in the definition of maintenance wastewater in the final rule. The wastewater definition in the final rule also applies to individual discharge events resulting from maintenance activities, not the sum of all events occurring from a single point of determination (POD) over the course of a year. By defining wastewater in this manner, only the largest, most significant maintenance wastewater streams would be subject to suppression and treatment. These large streams should be easier to identify and may occur only at certain POD's. The definition of Group 1 wastewater also includes maintenance wastewater streams with this same load; thus, there are no Group 2 maintenance wastewater streams, and there is no burden to characterize and track any maintenance wastewater streams other than Group 1 streams.

It is conceivable that there are no maintenance wastewater streams in the industry with characteristics approaching this definition. However, because EPA has no data on the quantities or characteristics of these maintenance wastewater streams, EPA believes the best approach is to define a threshold of concern rather than to exempt from suppression and treatment all maintenance wastewater streams.

2. Treatment Options

Several commenters requested that the enhanced biological treatment option in the proposed pharmaceuticals MACT standard be included in this rule (i.e., for wastewater that contains soluble HAP and less than 50 ppmw of partially soluble HAP) for discharges to a privately owned treatment works

(POTW). According to one commenter, the HON provisions essentially preclude discharge to POTW's because owners or operators of POTW's could not reasonably be expected to understand, implement, and certify compliance with this regulation. Furthermore, the commenter stated that the detailed analysis performed for the proposed pharmaceuticals rule indicated that air emissions for certain wastewater streams would be negligible; thus, there is no need to "ban" discharge to POTW's.

Except for minor differences in applicability cutoffs, one of the treatment options in the HON (and thus in the proposed rule) is similar to the enhanced biotreatment option under the proposed pharmaceuticals rule. Both the HON and the proposed pharmaceuticals rule regulate two groups of HAP compounds in wastewater. For the HON, the groups are called "list 1" and "list 2" compounds. For the proposed pharmaceuticals rule, they are called "partially soluble HAP" and "soluble HAP." All 52 of the compounds on list 2 are also classified as partially soluble HAP. List 1 contains all 14 soluble HAP as well as the 10 remaining partially soluble HAP. (Note that for the final pharmaceuticals rule, epichlorhydrin has been moved from the solubles list to the partially solubles list.) Under the HON, an owner or operator is exempt from the performance test requirement if wastewater is treated in an enhanced biological treatment process, and compounds on list 1 comprise at least 99 percent by weight of the HAP compounds (list 1 plus list 2) in the wastewater. Under the proposed pharmaceuticals rule, an owner or operator would be exempt from the performance test requirement if wastewater containing soluble HAP and less than 50 ppmw of partially soluble HAP is treated in an enhanced biological treatment unit, and the owner or operator demonstrates that less than 5 percent of the soluble HAP is emitted from the municipal sewer system. The definition of an enhanced biotreatment unit also is the same under both rules, and waste treatment units that qualify as enhanced biotreatment units are subject to the same compliance requirements under both rules. Therefore, EPA disagrees with the commenter's assertion that the treatment provisions in the proposed pharmaceuticals rule reduce the burden on POTW's, and EPA has not revised the treatment provisions for today's final rule.

One commenter cited the results of a study conducted by the Pharmaceutical Research and Manufacturers of America (PhRMA) (and discussed in detail in PhRMA's comments on the proposed pharmaceuticals rule) showing that streams discharged to POTW's have the potential for significant emissions only from "totally open" collection and municipal sewer systems. Therefore, if the collection and municipal sewer system is totally open, the commenter recommended adding a provision that would allow an owner or operator to use the enhanced biotreatment option only if the owner or operator demonstrates, as specified in the proposed pharmaceuticals rule, that less than 5 percent of the soluble HAP is emitted from the system.

Under the proposed rule, an off-site facility that treats wastewater would be required to comply with the same requirements as an affected source, including the emission suppression requirements from the collection system. The EPA has reexamined municipal sewer systems and determined that the primary potential for emissions from the collection system is from the headworks at the POTW. Thus, the final rule specifies that either the waste management units up to the activated sludge unit must be covered, or the owner or operator must demonstrate that less than 5 percent of the total list 1 HAP is emitted from these units.

3. Standards for New Sources

Several commenters consider the proposed wastewater standards for new sources with HAP loading greater than 2,100 Mg/yr to be too restrictive. One commenter believes only Group 1 wastewater, not all wastewater, should be subject to the standards. The commenter claims that requiring control of all wastewater will result in negligible additional environmental benefits, and would likely cause greater secondary air and resource impacts (e.g., from fuel usage and emissions of combustion products).

All of the commenters requested that additional treatment options be allowed. One commenter requested that EPA add a treatment option that allows an owner or operator to reduce the mass flow rate by the Fr values; the commenter stated that a 99 percent reduction might be achievable for an individual facility with a certain combination of HAP, but it would not be achievable by all facilities. Other commenters recommended adding at least an enhanced biotreatment option. One commenter believes all of the treatment options for existing sources should be allowed for new sources. Commenters requested the additional options because they believe that limiting treatment options significantly impacts compliance flexibility with little, or no, environmental benefit. For example, one commenter realizes that a steam stripper would not meet the standard for compounds that have Fr values less than 0.99, but believes that because the remaining HAP in the treated streams are less volatile, they would have negligible air impacts. Other commenters stated that EPA had agreed during the development of revised wastewater provisions for the HON that the various treatment options under the HON are equivalent from an air emissions standpoint (e.g., 95 percent reduction in a biological treatment unit is equivalent to 99 percent reduction in a non-biological treatment unit).

According to the CAA, the MACT floor for new sources is to be based on the emission control that is achieved by the best controlled similar source. In the PAI production industry, the best controlled source is achieving 99 percent control. This source also is treating all of its wastewater from PAI processes, the HAP load in this wastewater is 2,100 Mg/yr, and this wastewater contains a mixture of compounds with a range of Henry's law constants. Thus, the proposed MACT floor for new sources with a HAP load exceeding 2,100 Mg/yr consisted of the requirements to treat all wastewater and to achieve a 99 percent reduction in the HAP content in the wastewater; for new sources with lower HAP loadings, the MACT floor is no control, as for existing sources. The EPA continues to stress that the proposed MACT floor is consistent with the CAA, and it is retained in the final rule.

If a facility has a HAP load that exceeds the cutoff, the enhanced biotreatment option (i.e., the option that exempts an owner or operator from initial compliance demonstrations) is not allowed because EPA does not have information showing that enhanced biotreatment units achieve 99 percent removal for mixtures of compounds with low Fr values. Otherwise, the final rule allows any treatment option (including enhanced biotreatment) for such affected sources, provided the owner or operator demonstrates that it achieves 99 percent removal of all HAP in the wastewater. The EPA also points out that the requirement to achieve 99 percent removals applies only to facilities that have extremely high HAP loads and thus, high potential for emissions. Few new sources are likely to exceed the applicability cutoffs for the MACT floor because 2,100 Mg/yr was more than three times higher than the load at any other surveyed facility.

Finally, the commenter's statement about the equivalence of treatment

options needs clarification. Under the HON, the 95 percent option for biological treatment units requires that the reduction be achieved from all wastewater sent to the treatment unit, not just the Group 1 wastewater. The 95 percent reduction also applies to all Table 9 compounds in the wastewater, not just compounds with high Fr values. Thus, on average, this option is considered equivalent to other treatment options in the HON. This option is not considered equivalent to the 99 percent option for new sources described above because the 99 percent reduction is required for all wastewater and all compounds.

G. Bag Dump and Product Dryer Provisions

Numerous commenters opposed the development of standards for bag dumps, and many of these commenters also opposed the development of standards for product dryers. The commenters believe the MACT floor was not established properly per EPA protocol and that the level of the standard (0.01 gr/dscf) is not readily achievable and is not typical of fabric filter control. Pointing to the decision in *Portland Cement Association* v. *Ruckleshaus*, 486 F. 2d 375, 396 (D.C. Cir. 1973), the commenters stated that the test method used to demonstrate compliance must be closely linked to the test method used as the basis for the standard. The commenters expressed concern that the standard was based on data for only one source. Some of the commenters stated that the standard should not cover bag dumps because no data on bag dumps were used to develop the MACT floor, and bag dumps are sources of fugitive emissions that are difficult to capture and route to a control device. One commenter also stated that regulating bag dumps would not result in any meaningful emission reductions because the use of bag dumps is avoided for ergonomic and workplace exposure reasons, and any particulate matter emissions are small and already controlled to reduce workplace exposure. Some of the commenters stated that if standards are promulgated for these emission points, the standard should include an applicability cutoff as well as the concentration limit, and the terms "particulate HAP" and "bag dump" should be defined in the final rule.

Standards for product dryers and bag dumps were included in the proposed rule because these emission points can be a source of HAP emissions, specifically particulate matter HAP emissions. The MACT floor for these emission points was developed for equipment that emits particulate matter HAP; this equipment was limited to product dryers and bag dumps because these are the only known sources of particulate matter HAP emissions at PAI facilities. The MACT floor also was based on the level of control for these emission points at the MACT floor facilities (i.e., the nine facilities with the best overall control of PAI process units). One of the MACT floor facilities dried a PAI that is also a HAP. Emissions from this product dryer were controlled with a fabric filter, and emissions tests showed the outlet PM concentration was less than 0.01 gr/dscf. The floor for particulate matter HAP emission sources was based on this value because both product dryers and bag dumps are controlled with fabric filters, and 0.01 gr/dscf is a typical level for fabric filters.

The EPA is not persuaded by the commenter's argument that bag dumps should not be regulated because they are (or may be) sources of fugitive emissions and are thus not comparable to product dryers. The EPA knows of two bag dumps where a HAP raw material is added to a PAI process, and both are controlled with fabric filters. At a minimum, a hood or partial enclosure can be placed above or around a bag dump to capture the emissions and route them to the control device. Furthermore, one of the commenters stated that particulate emissions would be controlled to reduce workplace exposure. Uncontrolled emissions (i.e., the pre-control emissions) from one of the two known bag dumps exceed 1.6 Mg/yr. The EPA considers this to be a significant source, and the required emission reduction to be meaningful. The fact that some facilities may have found more desirable alternatives to the use of bag dumps does not justify exempting facilities that still use them from regulation.

No mass emission rate cutoff was established because all known bag dumps that are used to add a HAP raw material to a PAI process unit, and all product dryers that dry a product that is a HAP, are controlled with fabric filters, and EPA believes 0.01 gr/dscf is a reasonable level for all fabric filters in such applications. An emissions test for the fabric filter used to control the product dryer at the MACT floor facility provides evidence that this concentration is achievable. The outlet concentration was less than 0.01 gr/dscf for each of the 12 runs in the test. The EPA expects that the existing fabric filters were designed to meet this outlet concentration, but the standards and associated monitoring requirements are included in the rule to provide assurance that they will continue to perform at this level. As a result, EPA did not change the level of the standard, or add an applicability cutoff, for the final rule.

In summary, EPA maintains that standards are appropriate for bag dumps and product dryers that emit HAP, that the MACT floor is valid, and that the standard should be based on the MACT floor. However, EPA has decided to make one change for the final rule. At proposal, the standard was for "particulate matter HAP." For the final rule, the standard is for "particulate matter" because the material captured in the fabric filters is essentially all HAP, and test methods are for "particulate matter," not "particulate matter HAP." (The EPA assumes this is why the commenters mentioned linking the test method used as the basis of the standard with the method used to demonstrate compliance.) The final rule also specifies that the particulate matter standards are for product dryers that dry a PAI or integral intermediate that is a HAP, and for bag dumps that introduce a HAP to a PAI process unit. The final rule also defines "bag dump" as equipment into which bags or other containers containing a powdered, granular, or other solid feedstock material are emptied.

H. Heat Exchanger Provisions

One commenter stated that the requirements for heat exchange systems should be deleted because EPA has not justified the high costs of sampling that would be required by the proposed rule.

The EPA disagrees with the commenter's assertion that the heat exchanger provisions impose a high cost for sampling. The rule allows considerable flexibility in the type of sampling or other monitoring that an owner or operator may perform, and the amount of required sampling or monitoring is minimal. The owner or operator may elect to sample for one or more HAP or other substances whose presence in the cooling water indicates a leak. Alternatively, the owner or operator may elect to monitor for any surrogate indicator that reliably identifies the presence of a leak. If the owner or operator elects to comply by monitoring for a surrogate indicator, the owner or operator must develop a plan that specifies what parameter or condition will be monitored, the level that constitutes a leak, and an explanation of how the selected parameter or condition will reliably identify a leak. In the first year, sampling or monitoring is required eight times; in subsequent years, sampling or monitoring is required only four times

per year. If the heat exchangers are all part of a single system, only one set of inlet and outlet samples is required. These requirements also are not considered burdensome because many facilities in the chemical processing industry, and presumably the PAI production industry as well, conduct such sampling or monitoring as a common maintenance practice. Furthermore, sampling for the detection of heat exchanger system leaks is a general requirement of some State permits (e.g., Texas Natural Resources Conservation Commission).

One commenter supports the decision to use the HON requirements for heat exchangers, but believes the rule should simply cross-reference the HON, not modify and spread out the requirements among the standards, compliance, monitoring, recordkeeping, and reporting sections of this rule.

The EPA agrees with the comment that cross-referencing the heat exchanger provisions in subpart F of the HON would simplify the rule. Therefore, the final rule cross-references all of the provisions in subpart F rather than incorporating some of the provisions in the rule and cross-referencing others. However, the heat exchanger system provisions are contained in more than one section in the PAI rule because the two rules have different structures. In the HON, all of the requirements for a specific type of emission point were presented in a single section or in consecutive sections. In the PAI rule, the standards for all types of emission points are presented in one section, the initial compliance provisions for all types of emission points are presented in the next section, and so on. Therefore, each section in today's final rule cross-references the appropriate heat exchanger system provisions from subpart F.

I. Alternative Standard

Since proposal, EPA has received comments on another proposed regulation requesting the inclusion of an alternative standard for facilities that treat HAP emissions, especially from aggregated streams, with add-on control devices. The commenters contended that the use of such control devices should be encouraged because (1) greater emission reduction would occur by controlling processes that are not subject to a rule as well as those that are, (2) it may facilitate the streamlining of compliance requirements and thus reduce the resource burdens on both industry and the enforcement agencies, (3) it may be easier to assure and assess compliance, and (4) it may be more energy efficient and result in lower secondary emissions if fewer control devices are used.

The EPA agrees with the commenters and therefore decided to include an alternative in today's final rule. The alternative standard can be applied to individual process vents and storage vessels or to process vents and/or storage vessels that are manifolded together (with or without emissions from other sources) for control in an end-of-line control device (or series of control devices). The control device (or last control device in a series) must achieve an outlet, undiluted TOC concentration of 20 ppmv or less, as calibrated on methane or the predominant HAP. The control device must also achieve an outlet concentration of 20 ppmv or less as HCl and chlorine. Any other process vents within a process are regulated under the rule as otherwise specified without taking credit for the vents that are controlled under the alternative standard.

To simplify applicability of the alternative, all process vent and storage vessel emissions that are manifolded to a control device are considered as one regulated entity. As a result, an exceedance under the alternative standard results in only a single violation for a given control device, whereas an exceedance under the regular standard results in separate violations for each process using the control device.

J. Pollution Prevention Alternative

Comments relating to the proposed pollution prevention alternative included objections to the high numerical reduc tion target of 85 percent, and to the lack of specific recordkeeping and reporting requirements for demonstrating compliance. Commenters also objected to the proposed restriction on the use of the alternative for processes that generate HAP, and to the requirement that most of the reductions be achieved through pollution prevention techniques and not add-on controls. The following sections summarize major comments on the proposed pollution prevention alternative, EPA's response to these concerns, and subsequent changes made in today's final rule.

1. Objection to the High Removal Target for the Pollution Prevention Alternative

Two commenters asserted that the 85 percent reduction in HAP consumption factor should be changed to 75 percent for both pollution prevention options to be consistent with the Pharmaceutical MACT proposal.

The 85 percent reduction was not changed in the final rule to be consistent with the value specified in the Pharmaceutical MACT standard because both values were developed using industry-specific data. The basis for the 85 percent reduction is the overall nationwide reduction from uncontrolled emissions that is estimated as a result of the implementation of the standards in this industry. Although the required reduction "target" was calculated using the same methodology as that in the Pharmaceuticals MACT standard, the difference in numerical value is simply due to differences in the impact of the two rules on each respective industry. For the PAI production industry, the standards achieve slightly greater reductions relative to the uncontrolled baseline, which is carried forward to the reduction target for the pollution prevention alternative. See the pollution prevention memorandum in the Supplementary Information Document for details of this analysis.

2. Data Management for Compliance Demonstrations

One commenter stated that the mechanism to realize pollution prevention reductions must be maintained in a system that can be managed and provide data that regulated entities and EPA can use. The commenter asserted that States may not be prepared to support this regulation with the training requirements of their already overworked staffs.

The Agency agrees with the commenter that the information necessary to demonstrate compliance with the pollution prevention alternative should be identified, collected, and managed in a way that minimizes burdens on both the industry and the regulatory agencies charged with enforcement. Therefore, the final rule requires sources seeking to comply with the pollution prevention alternative to submit, as part of the Precompliance plan, a pollution prevention demonstration summary that describes how the pollution prevention alternative will be applied at the facilities, and what tracking mechanisms will be used to demonstrate compliance with the alternatives. This summary should include descriptions of how the facility will measure and record HAP consumption and production on a daily, monthly, and annual basis. The summary should also include appropriate documentation of how consumption will be tracked such as, but not limited to, operator log sheets, daily, monthly, and annual inventories

of materials and products, and shipment and purchasing records. The pollution prevention demonstration summary report allows the owner or operator some flexibility in deciding the most reasonable and efficient way to demonstrate compliance, while incorporating the regulatory agency's review and approval prerogative. Regarding the agency burden, EPA believes that compliance with the pollution prevention alternative may actually reduce much of the burden on the enforcement agency, in that the monitoring, reporting and recordkeeping burden will be reduced to a material tracking effort, potentially minimizing the amount of data needed to demonstrate continuous compliance (e.g., monitoring data) for an entire process.

3. Pollution Prevention for Reactant and Generated HAP

The EPA received several comments on the proposed rule's restriction against using the pollution prevention option in situations where HAP are generated in the process. One commenter specifically stated that pollution prevention should be allowed for HAP generated in a process. Another commenter indicated that the rule was not clear on how to comply when the HAP generated in the process is the same as that introduced. A third commenter noted that these exclusions would prevent them from using pollution prevention and suggested that the rule include calculations based on total resource effectiveness (TRE) equations like in the HON as a way to provide more cost-effective alternatives for processes that are prohibitively expensive to control (i.e., that would exclude such processes from the requirements of the conventional standards).

The Agency reviewed the language contained in the proposed standard and has revised it to capture the Agency's intent in restricting the use of the alternative in situations where HAP are generated, without prohibiting its use altogether. The Agency's concern, in adding the restriction to the proposed standard, was that HAP generated in a process would not be addressed through the pollution prevention alternative because it requires only a reduction in the consumption of HAP that are actually brought into the process. Therefore, a situation could exist in which a process could be exempted from control because the production-indexed consumption factors were reduced by adequate amounts (85 percent), while a potentially significant amount of HAP, which happened to be generated in the process, could still be emitted. The EPA agrees with the commenter that sources that generate HAP should be eligible for the pollution prevention standard, provided the HAP generated by the sources are included in the analysis. Therefore, the final rule allows owners and operators to use the pollution prevention alternative for processes that generate HAP that are not part of the production-indexed consumption factor (e.g., the HAP generated are different from the HAP brought into the process), provided the following conditions are met: (1) emissions of generated HAP are controlled to the levels required by the applicable provisions for storage vessels, process vents, wastewater, and equipment leaks; and (2) the pollution prevention requirements are applied to the HAP that are added to the process. For HAP that are generated in the process, as well as brought into the process (consumed), the definition of consumption has been revised in the final rule to consider quantities of HAP that are generated by the process.

A related issue is the tracking of the VOC consumption-indexed production factor and the proposed rule's requirement that this factor should not be increased as a result of pollution prevention. Although this issue was not specifically commented on, EPA also revised the language of the final rule regarding the production-indexed VOC consumption factor. In developing the pollution prevention alternative, EPA's intention was to recognize those processes that have reduced or will reduce the amount of HAP solvents used in the manufacture of PAI's as viable alternatives to add-on controls. By preventing affected sources from increasing the production-indexed VOC consumption factor, EPA intended to prevent solvent substitutions that merely replaced HAP with VOC. After reviewing the proposed pollution prevention standard, EPA realized that the proposed standard gave an unfair advantage to affected sources that use VOC-HAP solvents as opposed to non-VOC HAP solvents. As proposed, the rule did not allow affected sources using non-VOC HAP solvents to switch to low-VOC solvents and still qualify under the pollution prevention alternative because such a switch would increase the production-indexed VOC consumption factor. However, affected sources that use VOC-HAP solvents could switch to low-VOC solvents as long as the production-indexed VOC consumption factor did not increase. The EPA's intention in the final rule is that pollution prevention be accomplished through reductions in solvent usage as opposed to solvent substitution. After consideration, EPA changed the final rule to require an equivalent reduction in the production-indexed VOC consumption factor, if the reduction in the production-indexed HAP consumption factor is achieved by reducing a HAP that is also a VOC. If the reduction in the production-indexed HAP consumption factor is achieved by reducing HAP that is not a VOC, the consumption-indexed VOC factor may not be increased. In making these changes to the final rule, EPA essentially eliminated the possibility of receiving credit, through the pollution prevention alternative, for substituting VOC for HAP.

4. Restrictions on Reductions Achieved Through End of Pipe Controls (Option 2 of the Pollution Prevention Alternative Standard)

As proposed, option 2 limited reductions in the HAP factor to exactly 50 percent of the baseline factor, even if actual reductions exceeded this level. Several commenters recommended revising option 2 to allow any combination of pollution prevention and end-of-pipe controls to meet the 85 percent reduction requirement. Some of the commenters explained that not allowing credit for higher reductions makes the option unworkable under certain conditions, and it provides incentives for destruction of recovered material instead of reuse. Some commenters also stated that allowing credit for reductions less than 50 percent would be beneficial, in that such combinations of pollution prevention and emission control would bring overall removals to levels equal to or greater than those required by the standards. As an alternative to option 2, one commenter suggested allowing sources to comply with 90 percent of any applicable standard if at least 50 percent of the reductions are the result of pollution prevention. Finally, the commenters believe option 2 places "unnecessary" constraints on the type of control devices that can be used to obtain the required reductions.

In response to the comments, EPA stresses that the pollution prevention alternative is an alternative to the standards in the rule. As such, the Agency has flexibility in developing requirements that may provide alternative approaches for compliance, but is charged with preserving the reductions that would have been achieved through compliance with the standards themselves. Under option 2, EPA required that a significant portion (50 percent) of the reductions be

achieved using pollution prevention techniques, not add-on controls. Without such a restriction, owners and operators could attempt to use add-on controls entirely in meeting the pollution prevention target reductions, which might result in reductions that are less than those required by the standards. For example, the process vent standard requires a 90 percent reduction in the HAP emissions from affected processes, not an 85 percent reduction.

In an effort to ensure the emission reductions from the pollution prevention alternative are at least equivalent to the emission reductions achieved by the standards, the reduction target for the pollution prevention consumption factor was linked to the predicted reductions from the nationwide uncontrolled emissions through implementation of the standards. It was always the Agency's intent that these reductions would be achieved primarily through pollution prevention techniques. In recognition of the difficulties associated with achieving such high consumption reduction targets (85 percent), however, the Agency developed option 2 to allow some of the reductions to be achieved using add-on controls. For these reasons, the Agency disagrees, in general, with the comments suggesting lesser reductions in both the overall target of 85 percent and the requirement that at least 50 percent of the reductions be attributed to the pollution prevention alternative. However, the Agency agrees with the comments that option 2 as proposed is unworkable if the reduction achieved by pollution prevention exceeds 50 percent of the required amount. For the final rule, option 2 was revised to require that at least 50 percent of the reductions be achieved using pollution prevention and that the remainder of the 85 percent, however much is needed, be achieved using conventional controls.

The Agency stresses that the restrictions on the types of add-on controls allowed to be considered in addition to the pollution prevention reductions in meeting the overall target, are in place to guard against double-counting of emission reductions; for example, control via a technique that recycles HAP material back to the process is an environmentally beneficial technique and is encouraged. However, the recycling effect will also reduce the consumption of HAP; therefore, the recycling is inherently considered. To further reduce the consumption factor by the control achieved by the condenser would result in double counting of emissions reductions.

K. Emissions Averaging

1. Complexity of the Methodology

One commenter supported the concept of emissions averaging, but noted that the provisions are so complex and burdensome that many owners and operators may be deterred from using this option.

The emissions averaging provisions provided in the proposed rule are identical to those included in the HON. Further, the requirements are necessarily complex because of the increased flexibility of the compliance approach provided by the provisions. As stated in the HON promulgation preamble discussion, the EPA's goal in crafting the emissions averaging provisions was to make emissions averaging available to sources faced with controlling emission points that are particularly difficult or costly to control, while maintaining the ability to demonstrate compliance with the standard.

2. Nominal Efficiencies for Control Devices

Two commenters suggested that EPA set a nominal control efficiency for combustion devices used for air emission control for storage tanks and/or wastewater at 98 percent. One of the commenters asserted that EPA's wording in § 63.1362(k)(2) of the proposed rule inappropriately restricts sources equipped with controls listed in that section from generating emissions averaging credits.

The EPA believes that the commenters would like to equate 98 percent control to the performance specifications provided in the proposed rule for combustion devices used for air emission control for storage tanks and/or wastewater sources. The EPA does not agree that a nominal 98 percent should be assigned to these devices. Although EPA did establish these performance specifications, EPA maintains that testing is important to ensure that a control device can achieve the reported efficiency. For these reasons, EPA has required performance testing on combustion devices that control greater than 10 tons/yr of HAP. Therefore, EPA will not allow credits based on a control efficiency that has not been demonstrated. Secondly, the provisions of § 63.1362(k)(2) incorrectly referred to the 98 percent and 95 percent control levels as "nominal" control efficiencies. These efficiencies must be demonstrated via performance testing and therefore should not be restricted from obtaining credits in emissions averaging. The final rule has been changed to reflect this correction.

3. Restrictions on Calculation of Credits

Commenters believe EPA should delete the restrictions that prohibit a source from calculating emission averaging credits for emission reductions achieved prior to November 15, 1990 or with equipment installed to comply with other State/Federal rules. The commenters believe these restrictions (1) are arbitrary, (2) are not dictated by the CAA, (3) unfairly limit economic incentives and thus impose unreasonable costs, (4) penalize progressive companies, and (5) are inconsistent with procedures to develop the floor (i.e., emission points that would be excluded from emissions averaging are used in setting the standard). In addition, one commenter believes EPA's response to comments in the April 22, 1994 **Federal Register** notice on the HON are inadequate to justify the restriction.

The EPA's policy on not allowing averaging of emission reductions for controls in place prior to the passage of the 1990 CAA Amendments was explained in the April 22, 1994 **Federal Register** notice for the promulgated HON (59 FR 19426), and this rationale is still applicable. In general, the emissions averaging provisions are designed to provide an owner or operator with flexibility in designing a compliance strategy that optimizes the use of existing controls, rather than replacing them. However, the final rule does not allow credit for emissions reductions achieved by control devices installed before November 15, 1990 because EPA policy is that regulations must achieve additional reductions beyond what would have occurred in the absence of the amended CAA. Emission reductions achieved by controls that were in place prior to November 15, 1990 would have occurred regardless of whether or not the CAA was amended. If the rule allowed a source to take credit for these preexisting emission reductions, the source could increase its emissions above the 1990 baseline levels. Regarding the commenter's view that the restrictions penalize progressive companies, EPA notes that, at least for process vents that meet the applicability criteria for 98 percent control, owners and operators who can demonstrate that controls achieving the MACT floor level of control (90 percent) were in place prior to the proposal date of these standards are not required to achieve the higher efficiency requirement of 98 percent. In this manner, companies who have taken proactive measures to control emissions are actually rewarded. Additionally, the pollution prevention

alternative standard also rewards facilities which have demonstrated significant reductions in their production-indexed consumption factors. Finally, these provisions have been included in numerous regulations beginning with the HON, and they have been reviewed and approved by Office of Management and Budget (OMB).

4. Emissions Averaging for New Sources

Commenters objected to restrictions on emissions averaging for "new sources." The commenters disagreed with EPA's rationale in the preamble that this approach holds new sources to a stricter standard and that flexibility is unnecessary for new sources. The commenters argued that using emissions averaging is the more stringent approach because of the 10 percent discount factor that is applied to credits. Furthermore, the commenters stated that new sources also need flexibility to comply with the standard in the most economical and efficient manner; for example, if a new source is added to an existing facility there may be opportunities to route emissions from the new source to existing controls, or to over control certain existing or new emission points to provide equal or greater environmental benefit at lower cost. Also, commenters believe this restriction unfairly limits economic incentives and imposes unreasonable costs.

The EPA's policy on not allowing averaging of emission reductions for new sources was explained in the April 22, 1994 **Federal Register** notice for the promulgated HON (59 FR 19427), and this rationale is still applicable. As noted above, EPA designed emissions averaging provisions to provide existing sources with flexibility in achieving compliance. Instead of requiring the replacement of all existing controls that do not meet the level of the standard, the emissions averaging provisions allow an existing source to optimize the use of existing controls in the most economical and technically feasible fashion. The EPA maintains that this concern does not apply to new sources because the owner or operator of a new source would be able to integrate state-of-the-art controls into the design of the new source. However, nothing in the rule prevents an owner or operator from routing emissions from a new PAI process unit to an existing control that meets the required control levels. Finally, these provisions have been included in numerous regulations, beginning with the HON, and they have been reviewed and approved by OMB.

Even if emissions averaging were allowed for new sources, certain other factors may limit its feasibility. For example, new sources are subject to the requirements of the new source review (NSR) program that may require levels of control similar to those in the rule for new sources. In addition, because the level of stringency in the new source standards is high (98 percent), achieving credit above and beyond the 98 percent levels is probably unrealistic in most situations.

L. Testing Provisions and Initial Compliance Demonstration

1. Testing Conditions

Several comments were received regarding the proposed rule's language on testing. Specifically, commenters identified the requirements for testing under "absolute," "representative," and "hypothetical" conditions to be confusing and suggested simpler language that specifies, under actual or simulated conditions, the highest 1-hour period of HAP loading. Another commenter objected to the requirement of testing under the worst-case loading conditions, and suggested that testing be required to be conducted under "representative" conditions, citing several reasons for the comment, including safety (operating the device at higher than design loads could create safety issues), precedent from other regulations, and difficulty with production scheduling and the resulting production of unmarketable products if the process was operated in an abnormal fashion. The commenter also questioned the benefits of such testing, stating that organic HAP removal efficiency should be fairly stable across a device.

In response to these comments, EPA has made several changes to the testing language in the final rule that generally cover the commenters' suggested revisions, but also allow more flexibility in defining the required peak-case testing conditions. These changes include the elimination of the option to test under "representative" peak-case testing conditions, and the elimination of testing requirements for condensers. Additionally, EPA has expanded the testing language to cover factors other than the highest HAP load that also impair control efficiencies (i.e., the most challenging conditions for the control device). These other factors that limit control efficiencies relate to characteristics of components and the operating principles of the control devices. For example, the solubility of an emission stream component in scrubbing media, or the affinity of an emission stream component for carbon can also define the most challenging conditions for a particular control device.

The intent of compliance testing under peak-case conditions is to document the reduction efficiency of the control device under the most challenging conditions. This documentation is necessary to assure compliance in cases where the process operations yield emission stream characteristics that may vary significantly over time, and where conditions approaching absolute peak-case may occur. Subsequent to the initial compliance test, continuous monitoring of operating parameters established during the test is a reasonable measure of continuous compliance. Presumably, the control device should function as well or better under conditions that are not as challenging.

Although EPA is sensitive to unnecessarily increasing the burden associated with testing of control devices for little benefit, the Agency still has concern that testing under "representative" conditions (where "representative" is defined either as in the proposed rule for representative peak-case or as a more general concept as suggested by the commenter) may not be sufficient to demonstrate that the control device will achieve required efficiencies under all conditions. This is especially important as it relates to the continuous compliance demonstration provision. Therefore, the option to test under representative peak-case conditions has been eliminated for the final rule, and testing under representative conditions has not been added.

The final rule, however, does allow more flexibility in defining absolute and hypothetical peak-case conditions. The definition of "absolute peak-case" in the final rule incorporates the possibility that conditions other than the highest HAP loading constitute the most challenging conditions for the device. These conditions include, but are not limited to, periods when the emissions to the device may contain the highest combined VOC and HAP load, periods when the streams contain HAP constituents that approach limits of solubility for scrubbers, or periods when the streams contain HAP that approach limits of adsorptivity for carbon systems.

The hypothetical peak-case conditions also have been expanded. In addition to establishing hypothetical peak-case testing conditions based on a calculation of maximum actual emissions, the final rule allows hypothetical peak-case conditions to be defined based on equipment design

features that limit the maximum hourly emissions that can be routed to the control device. For example, a fan may limit the flowrate, and the concentration may be limited to a certain percentage of the lower explosive limit before a bypass valve opens.

The Agency does not believe that the testing provisions in the final rule require operation in a manner that could damage equipment, because the testing is only required for conditions that have some reasonable likelihood of occurring. Thus, the design of the system should have considered the possibility of operating under these conditions.

Regarding the comment that the testing provisions should not require operation in a manner that produces excess or unmarketable products, or in a manner that will not occur within the time frame allotted prior to the compliance date, the Agency concedes that some inconvenience to the source may occur, but believes that in most situations, facilities will be able to work within the confines of the definitions to arrive at a set of testing conditions that minimize production disruptions. The Agency also notes that the requirement for submittal of the site-specific test plan is also an opportunity for the facility to present site-specific information that may influence the selection of testing conditions. The EPA encourages owners and operators to work with the permitting agencies to arrive at solutions that meet the intent of this regulation.

2. Emission Estimation Procedures

One commenter stated that facilities should be allowed to calculate emissions based on all available information, including, but not limited to, the equations in the proposed rule, and that they should not have to demonstrate that the equations in the rule are inappropriate. According to the commenter, it is not logical to require facilities that produce a variety of products, only a small portion of which are PAI's, to modify their calculation methodology; nor is it logical to require recalculation on a large scale when the existing emissions estimates are based on fundamentally sound principles. The commenter also noted that facilities already may have invested significant resources to develop methodologies for calculating emissions. Another commenter requested that the rule specify when the emission estimation procedures are not considered appropriate.

For the final rule, EPA did not change the requirement to use equations to estimate emissions when the emission episodes fit the descriptions provided in the rule. The EPA believes that the equations in the rule are the most appropriate methods to estimate emissions from seven specific types of emission episodes. The requirement to use the equations, when appropriate, also is important in standardizing compliance procedures for the industry and in providing replicable procedures which the regulated community and the Administrator can follow to assure compliance. However, the rule also allows owners or operators to request approval to use alternatives for estimating emissions. The EPA believes it is important that the owner or operator be able to make a case for any alternative approach. The final rule clarifies the language describing when an engineering assessment must be conducted and when it may be conducted.

3. Compliance with the Outlet TOC Limit

Several commenters believe EPA should justify why a performance test to demonstrate compliance with the outlet TOC concentration under § 63.1364(c)(1)(viii) of the proposed rule must be conducted only under absolute peak-case conditions. Other commenters also stated that this section of the proposed regulation unnecessarily restricts the choice of test methods to demonstrate compliance with the outlet TOC concentration. Commenters requested that this section be modified to allow combinations of test methods to measure TOC, and to allow measurement of total organic HAP using Method 18.

The EPA reviewed the language in the proposed rule and decided to include two options for demonstrating compliance with the outlet TOC concentration. The source must choose one of the following compliance methods: (1) continuously monitor outlet concentration using a flame ionization detector (FID) or other devices, or (2) perform an initial performance test at absolute or hypothetical peak-case conditions and continuously monitor operating parameter levels. Initial testing at absolute or hypothetical peak-case conditions is not necessary for option 1 because continuous compliance is determined through the use of an FID or other device that continuously monitors outlet concentration (however, if the monitor is to be calibrated on the predominant HAP, it may be necessary to perform an initial test to identify the HAP). Conversely, EPA believes testing under absolute or hypothetical peak-case conditions is necessary for the second option to ensure that operating parameter levels are established that will ensure compliance under all operating conditions. The monitoring requirements for option 2 are the same as the monitoring requirements for complying with the percentage reduction format of the standard. Therefore, EPA believes the initial testing that is used to establish the monitoring parameters should also be the same in both cases.

Finally, EPA has modified the final rule so as not to restrict the choice of methods that the owner or operator may use to determine TOC (i.e., Method 18 is allowed for speciation). However, EPA emphasizes that the concentration limit is based only on TOC, not total organic HAP.

Commenters also objected to the requirement to correct outlet TOC emissions to 3 percent oxygen for the 20 ppmv outlet standard. Commenters oppose this provision because many thermal and catalytic incinerators normally operate with higher oxygen levels in the exhaust stream. Commenters suggested that a more reasonable requirement would be to correct the outlet TOC concentration to the design outlet oxygen concentration for each particular device. One commenter noted that the requirement should only apply when the control device is an incinerator.

The General Provisions prohibit the use of dilution as a means of achieving compliance with a standard (see 40 CFR 63.4(b), Circumvention). However, EPA also recognizes that there are valid reasons for introducing air or inert gases into manifolds for safety or design considerations. For example, supplemental combustion air may be required for proper operation of an incinerator. The intent of the proposed requirement for correction to 3 percent oxygen was to allow an owner or operator to add supplemental combustion air, but only take credit for the amount that is needed for proper operation. As one commenter noted, this correction was not intended to apply to other types of control devices.

The correction to 3 percent oxygen concentrations was drawn from the HON and the earlier SOCMI NSPS. Under these rules, this correction is required for purposes of demonstrating compliance with a 20 ppmv outlet concentration standard. The value of 3 percent originates from good engineering practices. For oxygen deficient streams, if the proper amount of supplemental combustion air is added, the outlet stream would contain approximately 3 percent oxygen. Typically, SOCMI facilities have low oxygen, high VOC/HAP concentration

streams that generally require supplemental combustion air when they are combusted. Therefore, a correction to prevent dilution was needed in rules for the SOCMI industry.

A similar requirement to correct the outlet concentration was included in the Polymer Manufacturing NSPS. Commenters on the proposed NSPS asserted that an oxygen correction may be appropriate for oxygen deficient streams to which supplemental combustion air is added to ensure combustion of the emissions, but it is not appropriate for high oxygen, low VOC concentration streams. The commenters on the proposed NSPS further stated that requiring an oxygen correction for processes with inherently high oxygen concentrations would prevent facilities from being able to use the 20 ppmv outlet concentration compliance option. Because at some point the combination of low VOC/HAP concentration and technology limitations of control devices makes it impossible to achieve a high percentage reduction (98 percent in the case of the Polymers NSPS), the 20 ppmv outlet concentration may be the only compliance option for some streams. As a result of considering these comments, the final rule for the Polymer NSPS was changed to require a correction to 3 percent oxygen only if supplemental air was used to combust emissions.

Other available information indicates that for some pharmaceuticals processes, dilution is needed for safety or design considerations other than for use as supplemental combustion air. Typically, this dilution occurs in manifolds conveying emission streams from unit operations that already have high oxygen concentrations, and it occurs for control devices other than incinerators. Although EPA does not have similar information for the PAI production industry, the information from the surveyed plants supports the commenters contention that there are process vent streams with high oxygen concentrations. It is also possible that some of these streams are diluted for reasons other than to supply supplemental combustion air.

It is not EPA's intent to prohibit the introduction of dilution air or other gases, only to ensure that outlet concentrations are corrected for such dilution. As a result, EPA made a number of changes in the requirement to correct outlet concentrations to prevent dilution. First, a definition of "supplemental gases" has been added to the final rule; this term includes supplemental combustion air as well as any other nonaffected streams with TOC and total HCl/Cl_2 concentrations less than 20 ppmv that are combined with affected streams. Second, the final rule clarifies that the correction to 3 percent oxygen applies only for incinerators, and only if supplemental gases are added. Third, the final rule explicitly describes procedures to correct for dilution in noncombustion devices.

4. Exemptions From Performance Testing

Several commenters requested that EPA change the cutoff that defines the minimum size of a control device for which a performance test must be conducted to demonstrate compliance. The proposed rule required performance testing of devices receiving at least 10 tons/yr of HAP emissions. Additionally, other commenters stated that the exemption to the performance test requirement for sources that have conducted a previous test using the same procedures as those required by the rule is basically useless because it is unlikely that a previous performance test would have been conducted using the same procedures and under the same peak-case conditions as those required by the rule. The commenters added that any test on the control device to demonstrate compliance under any EPA-supervised program (e.g., NSPS, NESHAP, RCRA, NSR) should be sufficient to demonstrate compliance with this regulation.

The EPA continues to believe that the testing cutoff for control devices is proper. In developing the regulation, EPA could have required testing of all devices. The EPA proposed the testing cutoff to decrease the burden of testing on the industry. For devices handling lesser loads, EPA believes that the design evaluation will be adequate to demonstrate compliance.

The EPA also continues to believe that the conditions for exempting certain sources from performance testing are proper. As described previously, EPA believes compliance must be demonstrated under the most challenging conditions for the control device to ensure compliance over a range of conditions, especially when variability in emission stream characteristics cannot be predetermined. Therefore, only performance tests that have been conducted at conditions that represent the absolute or hypothetical peak-case conditions are considered valid for demonstrating compliance with this rule.

5. Initial Compliance for Condensers

Under the proposed rule, EPA included three options for sources to determine emissions and control efficiencies for condensers: (1) Performance testing including measurement of HAP concentration and flowrate under peak-case conditions, (2) direct measurement of temperature of the outlet gas under peak-case conditions, or (3) emission estimation. Since proposal, EPA identified the following problems with the proposed options: (1) Direct measurement of temperature is a procedure to demonstrate ongoing compliance, not initial compliance; (2) for condensers, determining the control efficiency during the peak-case conditions does not ensure that the same or higher control efficiencies will be achieved under other conditions, (3) options 2 and 3 are not independent because the outlet temperature is needed to estimate emissions from a condenser, and (4) performance testing is not a replicable procedure for batch processing operations and is unnecessary for establishing the control efficiency. To address these concerns, the final rule was revised to include only one procedure for demonstrating initial compliance when using a condenser. This procedure requires calculation of the outlet temperature that is needed to achieve the required control efficiency for an emission episode (or group of episodes).

Determining the control efficiency for condensers under the peak-case conditions does not ensure that the control efficiency under other conditions will be the same or higher. Under the proposed rule, the peak-case conditions were defined based on the stream from which the maximum amount of heat must be removed over a specified time period to achieve the required emissions reduction. However, to achieve the required control efficiency for another emission stream with a different pollutant and/or temperature may require a significantly lower outlet temperature, even though less heat is removed. Basing the monitoring on the temperature for the stream with the maximum heat removal requirement would not ensure that the lower outlet temperature could be achieved for the other stream.

The revised procedure for the final rule is a replicable protocol in that for identical inlet conditions, every source will estimate the same controlled emissions and control efficiency when using the same outlet temperature. Performance testing for batch processing operations, on the other hand, can be difficult and can lead to considerable variability in results. In addition to concerns about replicable results, the performance testing provisions in the proposed rule were not structured to properly account for control efficiency

of condensers under all conditions. Under the performance testing option in the proposed rule, the control efficiency would be determined for the peak-case conditions. Then, using the heat removal rate that occurred during the test, the outlet temperatures, and thus control efficiencies, could be calculated for other inlet conditions. However, a performance test is not needed because these temperatures can be calculated based on the properties of the emission streams. For these reasons, the final rule does not specifically require testing of condensers (e.g., measurement of flowrate and concentration to generate a mass rate) as a means of compliance with the standards. However, as with other practices, owners and operators can propose alternative means of demonstrating compliance with the standards for approval on a case-by-case basis.

M. Monitoring

1. Establishing Parameter Levels

Several commenters suggested that testing under peak-case conditions and establishing parameter levels for the continuous compliance demonstration results in overcontrol during most of the operations and therefore increases the stringency of the standards. The commenters also believe the requirements to use the average of the three test runs to set the parameter level and to determine compliance on a daily basis, as opposed to a yearly basis, increase the stringency of the standards. One commenter believes that a source should be able to establish parameter ranges other than those measured during a performance test.

In the final rule, EPA requires that testing be conducted under absolute or hypothetical peak-case conditions if all control device inlet stream conditions cannot be predetermined. If inlet stream conditions can be predetermined, the owner or operator has the option of setting different monitoring levels for different operating conditions. This option was provided in the proposed rule and has been retained in the final rule. Therefore, EPA does not believe the requirement results in over control.

Regarding averaging periods, EPA has modified the compliance period of the standard to allow averaging on either a 24-hour basis or a "block" basis, where the block may be any length of time less than the time from the beginning to the end of a batch process. For batch operations, an annual compliance period was determined by EPA to be too difficult to implement and therefore not practical. The annual compliance period implies that owners and operators could control a process to varying degrees during the course of a year, as long as the yearly percent reduction target would be met. Although this format would offer flexibility to owners and operators who want to change control strategies to accommodate production scheduling and operational changes, EPA believes that the demonstration of compliance over such an extended time period would result in delayed determination of exceedances and the possibility for extended periods of violations. The EPA notes that the final rule offers numerous compliance options to provide flexibility for owners and operators to address variability within their processes.

Regarding the setting of parameter levels, the purpose of monitoring operating parameters is to provide evidence of continued compliance with the rule. Monitoring parameters are set based on test data, calculations, or information from the evaluation of the control device design. The final rule requires sources to establish maximum or minimum operating parameter levels based on the average of the average parameter values for each of the three test runs (i.e., average values are to be determined for each of the three test runs, and the monitoring parameter level is to be based on the average of these three values). The Agency believes that setting monitoring levels based on the average of three test runs is necessary because the control efficiency is also based on the average from the three test runs. Basing the monitoring parameter on the results of only one of the test runs would be inconsistent with the average control level.

2. Monitoring With Bag Leak Detectors

Two commenters believe the requirement to initiate corrective action within 1 hour of a bag dump alarm is unnecessarily rigid or unnecessary because other situations may require priority attention, replacement parts may not be readily obtainable after normal business hours, or it could trip accidentally. One commenter suggested changing the 1 hour time period to 3 hours. Commenters also believe it is both unnecessary and inconsistent with other aspects of the rule to require written approval before adjusting the range, averaging period, alarm setpoints or alarm delay time contained in the Notification of Compliance Status report. The commenter suggested requiring changes to be reported in the next periodic report, and, if prior approval is needed, it could be handled under the Operating Permit program.

The intent of the requirement to initiate corrective action procedures within 1 hour is to ensure the prompt investigation of the cause of an alarm and resolution of the underlying problem. The corrective action does not necessarily have to be completed within the hour, but the owner or operator should follow predetermined procedures that are to be described in a written corrective action plan. These procedures may vary depending on the time of day, what was determined to cause the alarm, other priorities in an emergency, and other factors. Timing is one aspect of the procedures that the owner or operator should address in the corrective action plan. For the final rule, these provisions have been edited to clarify intent. One substantive change since proposal is that the corrective action plan is to be submitted with the Precompliance plan rather than the Notification of Compliance Status report. This change will allow the implementing agency to review and approve the procedures.

The intended use of the bag leak detector is to identify upset conditions in the baghouse operation. The EPA is concerned that unrestricted adjustment of the bag leak detector could result in improper use, possibly resulting in the alarm and sensitivity settings being set such that leaks or malfunctions could occur undetected. Based on further review, EPA has determined that periodic adjustment may be necessary. Therefore, EPA has revised the bag leak system adjustment requirements to: (1) Allow for routine minor adjustments to the detector system, (2) require owners and operators to identify all routine adjustments in an operating and maintenance plan that is to be submitted with the Precompliance plan, and (3) require that owners and operators perform complete baghouse inspection to ensure proper operation of the baghouse prior to any significant adjustments to the sensitivity or range.

3. Monitoring Frequency

One commenter believes two aspects of the proposed monitoring frequency are excessive: (1) The requirement in § 63.1365(b)(3) of the proposed rule to monitor batch episodes less than 15 minutes in duration, and (2) the requirement to monitor control devices controlling less than 10 ton/yr of an individual HAP or 25 ton/yr of aggregate HAP. For the control devices, the commenter believes "periodic" monitoring would be sufficient because many parameters do not vary frequently, and it would allow for the use of simpler monitoring systems that are less prone to design and maintenance problems.

When only one monitoring level is established for a parameter, the EPA agrees with the commenter that monitoring of batch episodes less than 15 minutes in duration should not be required because the practical limit of monitoring frequency is one reading per 15 minutes. Instead of requiring that each batch episode be monitored at least once, the final rule requires an owner or operator to measure and record the parameter level at least once every 15 minutes during the period in which the control device "is functioning in achieving the HAP removal required" by the rule. This means that one reading must be taken for every 15-minute period of continuous venting from any combination of emission episodes manifolded to the control device. Thus, even when individual emission episodes are shorter than 15 minutes, one reading is required if venting occurs for at least 15 minutes due to overlapping or "contiguous" episodes. On the other hand, if short emission episodes are separated by periods of no flow or venting from vents that are not subject to control, the owner or operator does not need to monitor during each episode. In this case, monitoring every 15 minutes will result in some readings that correspond with an emission episode of an affected stream. Only these readings must be included in the daily (or batch) average. For storage vessels, a control device is considered to be functioning in achieving the HAP removal required at all times material is stored in the vessel. Although working losses occur only during relatively short periods when the tank is being filled, breathing losses may occur at any time. To identify periods of no flow, a flow indicator (not necessarily a flow monitor) would be required.

An exception to the procedures described above exists if the owner or operator establishes separate monitoring levels for different emission episodes. In this case, at least one reading must be taken each time the level changes, even if episode lasts less than 15 minutes. This exception is included to counteract the possibility of setting multiple levels in order to avoid monitoring.

As a result of the change in monitoring frequency, the definition of a valid hour of data as used in the definition of an excursion also has been modified in the final rule. At proposal, monitoring data would not constitute a valid hour of data if measured values are unavailable for any of the 15-minute periods within the hour. For the final rule, the word required has been added before the phrase "15-minute period" to address the fact that less than four data points per hour may be allowed in some situations.

The EPA believes that the requirement to take 15-minute readings for devices controlling more than 0.91 Mg/yr of HAP is reasonable. The cutoff for continuous monitoring was set because EPA wanted to reduce the compliance burden on facilities with smaller control devices. The EPA also notes that "periodic" monitoring could increase the potential for being out of compliance with the standard, because a reduction in the number of data points places a significantly higher emphasis on each reading for compliance determination. Additionally, because emission stream characteristics in this industry are variable, the use of "periodic" readings may not represent true conditions over the monitoring period.

4. Monitoring for Storage Vessel Controls

One commenter believes the proposed rule lacks appropriate monitoring provisions for control devices that are used to control emissions from storage vessels. According to the commenter, the proposed provisions address only continuous monitoring, which often will not be appropriate for storage vessels because the emissions occur primarily during filling. Furthermore, if emissions are controlled using a disposable carbon canister, the monitoring may consist only of replacing the canister before the end of its rated life, not periodically checking a parameter. Therefore, the commenter recommended that EPA include some of the concepts from the storage tank monitoring provisions in § 63.120(d) of the HON. For example, these provisions specify that the owner or operator must prepare a monitoring plan that describes how the monitoring will be done. In addition, the commenter indicated that the rule needs to define "excursion" for situations where monitoring is not continuous (e.g., the rule should specify that the monitoring plan "shall define an excursion in terms of the relevant operating parameter").

The monitoring provisions in § 63.1365(a) of the proposed rule were intended to apply to control devices used for continuous processes, and the provisions in § 63.1365(b) were intended to apply to control devices for all other emission streams. In the final rule, the provisions from § 63.1365(a) and (b) have been consolidated into one section that specifies monitoring provisions for all control devices (§ 63.1366(b)). The final rule also includes monitoring provisions for nonregenerative carbon canisters; the owner or operator is required to determine the maximum time interval between replacement based on operation under absolute or hypothetical peak-case conditions and to replace the canister before this time elapses.

Unlike the HON, the final PAI rule requires the same type of monitoring regardless of the purpose for which the control device is used. The EPA does not believe it is necessary to have different procedures for storage vessel control devices because the types of emission episodes from storage vessels are comparable to those from batch process vents. Furthermore, most storage vessels at the surveyed PAI plants emit less than 0.91 Mg/yr. Under the final rule, if the total uncontrolled HAP emissions entering a control device are less than 0.91 Mg/yr, the owner or operator may elect to conduct a periodic (at least daily) verification that the control device is operating properly. The verification procedures are to be described in the Precompliance plan. This provision is comparable to the monitoring plan concept described in § 63.120(d)(2) of the HON. On the other hand, if the total uncontrolled HAP emissions entering the control device exceed 0.91 Mg/yr, the owner operator must monitor the appropriate parameter(s) every 15 minutes during which the control device is functioning in achieving the HAP removal required by the rule. Based on information from the surveyed PAI facilities, this situation would apply to very few storage vessels in the PAI industry. Most of the few storage vessels with emissions greater than 0.91 Mg/yr are vented to the same control device that is used to control process vent emissions. Thus, a separate set of monitoring requirements for storage vessel control devices is not needed.

For devices that control more than 0.91 Mg/yr of HAP, the definition of excursion in the final rule is the same as that in the proposed rule, and it is applicable to all control devices. Specifically, a valid hour of monitoring data must be obtained for 75 percent of the hours that a control device operates during a day (or, if the control device operates less than 4 hours, at least 3 hours of valid data must be obtained). As noted above, the control device operation is based on the time when the control device is functioning in achieving the HAP reduction required by the rule. For storage tanks, this means all of the time that the storage tank contains material. When compliance for small control devices is demonstrated by conducting a periodic verification, the final rule has been

revised to clarify that not conducting the verification is an excursion.

The final rule also clarifies that exceedances of operating parameters are those times when (1) the parameter level, averaged over the operating day, is above a maximum or below a minimum established during the initial compliance demonstration, or (2) the required operating characteristic is not met (e.g., loss of all pilot flames for a flare). If compliance is demonstrated by conducting a periodic verification, an exceedance occurs any time the daily, or more frequent, demonstration does not confirm that the control device is operating properly.

5. Violations

Several commenters asserted that excursions or exceedances of an operating parameter should not be violations of the emission standard. Another commenter also stated that failure to take corrective action after a bag dump alarm should be a violation of a work practice requirement, not the emission standard. The commenters stated that such incidents should not be violations of an emission limit because the parameters are only indicators of proper operation, they do not prove compliance with an emission standard. Another commenter stated that the proposed provision conflicts with the basis of the compliance assurance monitoring (CAM) regulation. Two commenters also stated that the requirement in § 63.1365(a) to "operate processes and control devices within the parameters" must be revised. Both commenters interpreted this statement to mean that each data point must be within the established limit. One commenter indicated that the source must be allowed to demonstrate continued compliance with the emission standard despite exceedance of a monitoring parameter. Another commenter stated that (1) monitoring data collected during any startup, shutdown, or malfunction should be excluded from daily averages; (2) the rule should specify that there is no violation if an event such as a malfunction results in insufficient data or an exceedance of a parameter; and (3) the statement that an excursion is not a violation if it happens during a startup, shutdown, or malfunction and the facility follows it startup, shutdown, and malfunction plan is a concern because it could be interpreted to mean that EPA could assess two penalties if the plan is not followed.

The EPA's policy is that new part 63 rules, in particular those that require the use of a control device to reduce pollutant emissions, will include compliance determinations on two levels. The first level is the "traditional" performance test requirement that is based on the use of a specific test method over a set period of time and operating conditions. A performance test is generally conducted at the time the rule is first effective (e.g., at facility startup or after an effective date for an existing facility) and may be repeated periodically thereafter. The results of the performance test are compared with an emission limitation (e.g., concentration, control efficiency, or mass rate). The second level of the compliance determination in part 63 rules is the continuous compliance obligation, which is implemented through monitoring.

In general, EPA recognizes two basic approaches to monitoring. One method is to establish monitoring as a direct measure of continuous compliance. Under this continuous compliance monitoring approach, an enforceable value of the monitored parameters is defined and measured. The Agency has adopted this approach in part 63 standards and is committed to following this approach whenever appropriate in future rulemakings. Another approach is to establish monitoring to provide a reasonable assurance of compliance by documenting continued proper operation of the control devices, indicating excursions from proper operating conditions, and correcting the problems that cause excursions. This second approach is the basis of the CAM rule, which applies to sources that are not currently subject to part 63 standards.

Some part 63 rules specify that compliance be demonstrated continuously using either a continuous emissions monitoring system (CEMS) for a surrogate pollutant or parameter monitoring. In these situations, the rule includes specific limitations and averaging times. The surrogate pollutant or operating parameter limit becomes an enforceable limit for the rule. There is no requirement that an alternative limit, whether a surrogate pollutant or an operational parameter, be statistically correlated with emissions or the compliance level of the regulated pollutant(s). The alternative limit is a separately enforceable requirement of the rule. The alternative is not secondary to the emission limit; rather, it is applied in lieu of a continuous emission limit obligation.

The enforceable level for the surrogate pollutant or operating parameter may be based on measurements made during a performance test or other conditions specified by the part 63 rule. In any case, the alternative limit becomes the continuous compliance obligation and fulfills the second level of compliance for the rule.

The EPA has considered the commenters' argument that an exceedance of a monitoring parameter is not necessarily an exceedance of an emission limit. The Agency acknowledges that a parameter exceedance does not necessarily mean that the source has exceeded the emission limit. However, as discussed above, under the EPA's approach to continuous compliance in part 63 rules, the continuous parameter monitoring limit is a separate requirement that is not rebuttable through contrast with actual or estimated HAP emission values. In addition, EPA believes that given the flexibility the owner or operator has to select operating parameters, including the option that allows the owner or operator to set different parameter levels for different operating conditions, the burden is on the source to remain within the operating limit defined for the parameter or parameters.

To address the potential disparity between parameter limit exceedances and emission limit exceedances, the final rule contains two different types of continuous compliance violations. When a source is using a CEMS to monitor compliance with the 20 ppmv alternative standard, an exceedance is defined as a violation of the emission limit. Similarly, because the exit gas temperature of a condenser is so closely correlated with emissions, a condenser temperature exceedance is considered a violation of the emission limit. Exceedances of other types of parameter limits are defined as violations of an operating limit. Failure to initiate the corrective action plan after a bag leak detector alarm also is a violation of an operating limit.

If monitoring data obtained during a startup, shutdown, or malfunction result in an exceedance, the exceedance is not a violation as long as the facility follows the startup, shutdown, and malfunction plan. If the facility does not follow the plan, an exceedance would be a violation, but it would not be two violations. Thus, the final rule retains the requirement to use data obtained during any startup, shutdown, and malfunction in daily averages.

Similarly, if a startup, shutdown, or malfunction results in the inability to collect monitoring data, it may cause an excursion. This excursion would not be a violation if the facility followed its startup, shutdown, and malfunction plan, but it would be a violation if they did not follow the plan.

As noted above, the final rule requires monitoring when the control device is functioning in achieving the HAP removal required by the rule. Thus, data obtained during time when the process is not operating are not to be used in determining the daily average of the parameter level.

Finally, EPA believes that the language in the final rule is clear regarding the determination of a violation. The final rule no longer contains language specifying that owners and operators "shall operate within established parameter levels." Additionally, EPA believes that the final rule clearly identifies averaging periods for reducing monitoring data and comparing against established parameter levels.

N. Recordkeeping and Reporting

Comments received relating to recordkeeping generally focused on the burden of the extensive recordkeeping required by the regulation. Comments related to reporting focused on dates for submittal of reports, and the burden of submitting all the reports required by the regulation. These comments are discussed below.

1. Recordkeeping Burden

Several commenters took issue with the amount of recordkeeping required by the rule and requested that EPA review the recordkeeping requirements to ensure that the amount of recordkeeping is really necessary. One commenter supports the provisions in § 63.1366(a) and (a)(3) that would require an owner or operator to maintain records of only the daily average of the parameter values not each datapoint, because this reduces the recordkeeping burden. This commenter also stated that the rule should contain a provision similar to the provision in § 63.152(g) of the HON, which allows for retention of only average parameter values, rather than each individual data point.

Detailed records are needed to demonstrate compliance with the regulation. However, prior to proposal, EPA made a concerted effort to eliminate duplicative and unnecessary recordkeeping requirements because EPA recognizes that these requirements would burden both the affected sources and EPA enforcement agencies. Since proposal, EPA has reviewed the recordkeeping provisions and made a number of changes. Many of the changes are editorial revisions designed to clarify the requirements. Some of these clarifications are discussed in more detail in other responses in this chapter. Other clarifications explicitly state recordkeeping requirements that were merely implied in the proposed rule (e.g., records of planned routine maintenance and records of the absolute or hypothetical peak-case conditions for process vent testing).

The final rule also includes additional recordkeeping requirements to document compliance with new or revised provisions in the rule. For example, the final rule includes recordkeeping to document the primary use for material produced by PAI process units if the primary use is not as a PAI (see section 3.2 for a discussion of the new primary use provisions). Another example in the final rule includes procedures to demonstrate ongoing compliance with the annual emission limit for process vents by calculating an annual rolling summation every day, and records of these calculations must be maintained. Finally, § 63.1362(j) was added to the final rule to specify that bypass lines that could divert a vent stream away from a control device must be monitored either with a flow indicator or by visual inspection of the seal or closure mechanism that secures the valve in the closed position; records of any flow or the results of inspections must also be maintained.

One additional change involves the parameter monitoring records in § 63.1366(a) and (a)(3) that were cited by the commenter. After reviewing these requirements, EPA now believes that, even when the daily average is in compliance, it is necessary to maintain all parameter readings, not just the daily averages. This rule requires that owners and operators select only parameter readings that are taken when the control device is controlling HAP emissions from affected emission streams. Emission episodes from batch processes, which predominate in the PAI production industry, are discontinuous. As a result, some monitoring readings may occur during periods of no flow for affected streams (although there may be flow of nonaffected streams). Readings taken during these periods must be excluded from the daily averages. In order to verify that the daily average values were calculated correctly, the rule requires owners and operators to keep all data. The EPA also does not believe that the approach in § 63.152(g) of the HON would be appropriate for this rule because, unlike this rule, the HON regulates emission streams with continuous flow.

2. Reporting Burden

Some commenters stated that the requirement in the proposed rule to submit a Precompliance report should be deleted. Additionally, some commenters requested that the proposed frequency for submitting periodic reports should be changed from quarterly to semiannually to be consistent with other MACT standards.

The final rule retains the requirement to submit a Precompliance report (or Precompliance plan in the final rule). The EPA believes the Precompliance plan is a valuable tool for the regulatory agency that will be making compliance determinations for the affected source. It provides an enforcement official or inspector with some initial background information about the process being controlled, the types of emissions associated with the process, corresponding control equipment, and the monitoring parameters that have been or will be correlated to the process conditions. The Precompliance plan is also the mechanism by which the affected source requests approval to use alternative monitoring parameters and to use calculations or other compliance procedures that differ from those prescribed in the rule. Because many of the compliance procedures for this rule are more complicated than those for the HON, EPA believes the Precompliance plan requirement is warranted for this industry and has retained the provision in the final rule.

The EPA has also reevaluated the overall reporting requirements in the proposed rule and compared the proposed reporting requirements with requirements in rules for similar industries. As a result, the Agency decided to change the periodic reporting from quarterly to semiannually. In those cases where continuous emission monitoring data are used to demonstrate compliance with the 20ppmv alternative standards, and the source experiences excess emissions, quarterly reporting is required until a request to reduce reporting frequency is approved. Section 63.1368(g) in the final rule is now titled "Periodic reports" and details the submittal schedule and content of the required Periodic reports. Also, as a result of comments, the final rule now requires that equipment leak reports be included with the Notification of Compliance Status report and the Periodic reports. The final rule requires that the Periodic reports be submitted within 60 operating days after the end of the applicable reporting period.

Other changes made to the final rule as a result of comments include the addition of a new section to address the submittal of information describing process changes or changes made in the information submitted as part of the Notification of Compliance Status

report. This information must be submitted within 90 days after the changes are made. The information may be included as part of a Periodic report, if one is to be submitted within the 90-day period. The information to be reported is to include: a brief description of the process change, a description of any modifications to standard procedures or quality assurance procedures, revisions to any of the information reported in the original Notification of Compliance Status Report, and information required by the Notification of Compliance Status report for changes involving the addition of processes or equipment.

3. Date for Submittal of Notification of Compliance Status Report

One commenter stated that the Notification of Compliance Status report submittal date in the proposed rule conflicts with the requirements of the General Provisions in § 63.7(a)(2) to complete performance testing within 180 days and § 63.10(d)(2) to submit performance test reports within 60 days after tests.

The submittal date for the Notification of Compliance Status report in § 63.1368(f) of the final rule does not conflict with the General Provisions requirements in §§ 63.7(a)(2) and 63.10(d)(2), it supersedes it. As noted in Table 1 to Subpart MMM—General Provisions Applicability to Subpart MMM, "[T]est results must be submitted in the Notification of Compliance Status report due 150 days after the compliance date." This means that the performance testing and the compilation of the test results must be completed and submitted as part of the Notification of Compliance Status report which is due within 150 days after the compliance date. Additional language was added to the final rule under § 63.1368(a) to clarify which of the reporting requirements of subpart A (General Provisions) remain in effect for this rule and which requirements have been superseded.

O. Miscellaneous

1. Environmental Impacts

One commenter believes EPA did not adequately consider the secondary air impacts of nitrogen oxide (NO_X) formation caused by combusting nitrogen-bearing HAP (and non-HAP VOC that may also be present) in process vent streams and wastewater.

The impacts analysis was based on a small number of model streams with characteristics that represent typical or average characteristics of streams at the surveyed facilities. Very little nitrogen-bearing HAP is emitted from the surveyed facilities (less than 5 percent of both the total uncontrolled organic HAP emissions from process vents and the HAP load in wastewater streams), and most of these HAP are controlled to the level of the standard. Therefore, the model emission streams that were used to estimate secondary air impacts did not include nitrogen-bearing HAP. In addition, any small underestimate in the NO_X emissions from nitrogen-bearing HAP is likely more than offset by the use of conservative estimates in the original analysis. For example, the estimated increase in NO_X emissions were based solely on the emissions associated with operation of the more efficient controls needed to achieve the level of the standards; emissions from existing controls that would be replaced were assumed to be negligible.

2. Cost Impacts

Two commenters believe EPA underestimated the costs to comply with the proposed rule. Based on recent experience installing some of the control devices that are used in the cost analysis, one commenter believes the costs are "significantly" underestimated, especially when the standard is more stringent than the floor. This commenter also indicated that, based on the additional secondary air impact described in the comment above, the cost analysis should consider the need to install best available control technology (BACT) or RACT to control NO_X emissions.

The other commenter believes none of the models used in the cost analysis adequately address the situation at the commenter's facility. This commenter operates an affected source that emits carbon disulfide, which, when burned, generates a significant amount of sulfur oxides (SO_X). The SO_X is not an issue under the MACT standard, but it is a criteria pollutant that would have to be controlled under State regulations. As a result, the commenter believes EPA's cost analysis underestimates the cost the commenter would face for two reasons. First, the model is based on a thermal incinerator with 70 percent recuperative heat recovery, but the commenter could not use this control device because carbon disulfide has a low auto-ignition temperature; they would have to use either a thermal incinerator with no heat recovery or a regenerative thermal oxidizer with 85 percent heat recovery. Second, the scrubber that follows the incinerator would need to be able to control the SO_X emissions as well as HCl emissions.

The cost impacts were based on models that represent a range of characteristics at actual facilities. The models are expected to overestimate costs at some facilities and to underestimate costs at others.

It is possible that installing a control device could trigger the requirement for a BACT or RACT analysis. Typically, to trigger BACT analysis, the control device would have to cause a net increase in NO_X emissions of 40 tons/yr (or any amount that has an impact of 1 microgram per cubic meter within 10 kilometers of a class I area). To increase emissions by 40 tons/yr would require a very large incinerator; the incinerator to control the largest model process was estimated to increase NO_X emissions by only about 11 tons/yr. Typically, a facility has only two PAI processes. Thus, even if all emission streams are routed to the incinerator and the emission stream contains nitrogen-bearing HAP, it will be a very unusual situation for NO_X emissions to increase by 40 tons/yr. Typically, RACT is applied only to existing sources; thus, a new incinerator installed to comply with today's final rule would not trigger RACT. As a result, EPA did not include BACT or RACT technology in the models used in the impacts analyses.

The SO_X control also was not included in the cost analysis because it is not a typical requirement, the amount of SO_2 control that would be needed is unknown, and the cost is not expected to be significantly different from that for an HCl scrubber. The total annual cost of a thermal incinerator with no heat recovery is approximately equal to that for a thermal incinerator with 70 percent recuperative heat recovery. The annual auxiliary fuel costs would be higher for the incinerator without heat recovery, but these costs are nearly offset by lower capital costs, which would result in lower capital recovery costs. Although the performance of a given scrubber will be better for HCl than for SO_2, a scrubber can easily be designed to obtain excellent SO_2 removal efficiencies.

3. Economic Impacts

One commenter believes EPA has not adequately evaluated the impact of the proposed rule on small businesses. The commenter notes that the regulatory flexibility analysis finds minimal impact on small businesses, but the docket states that the two known small firms for which data were available were not surveyed to find the impact of the regulation on them. The commenter believes a survey of small businesses is needed; otherwise the impact on them is unknown. This issue is important to the commenter because at the time facilities responded to the section 114

information request, the commenter's plant was part of a large business, but it has since been sold and is now classified as a small business.

The EPA reevaluated the economic impact using revenue data for the commenter's facility. Using Dun & Bradstreet data, EPA estimates that the cost-to-revenue ratio for this small business is approximately 2.3 percent. As noted at proposal, the control costs for model small businesses were also estimated to be less than 3 percent of revenue for model plants. This percentage suggests that the final rule will not significantly impact small firms in the PAI manufacturing industry.

4. Standards for Possible Endocrine Disruptors

In the preamble to the proposed rule, EPA solicited comment on whether the risk posed by possible endocrine disruptors warrants more stringent requirements than those proposed. Numerous commenters opposed the development of more stringent requirements; none supported the idea. The commenters cited the following reasons for not developing more stringent requirements: (1) The science for determining disrupting properties of chemicals and their risks is still under development; (2) technology-based standards are not appropriate to address endocrine disruption; (3) endocrine disruption is not an adverse endpoint, but a mechanism of action; (4) the compounds are emitted in small quantities; and (5) this has not been an issue under other MACT standards that address essentially the same materials.

In the proposal preamble, EPA indicated that available information shows emissions of possible endocrine disruptors is very low relative to other HAP emissions. Based on these data and the comments, EPA has decided not to include more stringent requirements for possible endocrine disruptors in today's final rule. Today's final rule does not preclude the possibility that EPA may take action on endocrine disruptors in the future as new information becomes available.

5. Risk-Based Standards for HCl

The preamble to the proposed rule explained that section 112(d)(4) of the CAA provides EPA with authority, at its discretion, to develop risk-based standards for HAP "for which a health threshold has been established," provided that the standard achieves an "ample margin of safety." Because HCl is a threshold pollutant that is emitted from PAI manufacturing facilities, EPA solicited comment on the adequacy, desirability, and feasibility of developing a risk-based standard instead of a MACT standard for HCl emissions from PAI manufacturing facilities. One commenter opposed the development of a risk-based standard for HCl emissions because it would delay promulgation of the rule. Another commenter opposed development of a risk-based standard because the commenter believes the proposed requirements, in conjunction with permit limitations based on ambient concentrations, are protective of the environment and human health. Another commenter supported EPA's determination of HCl as a threshold pollutant.

The EPA agrees with the commenter that a risk-based approach would delay promulgation of the rule. Given the relatively small potential difference between a MACT-based standard and a risk-based standard, EPA believes that the small benefits are substantially outweighed by the burden to EPA and the industry of collecting and analyzing the data needed for a risk-based standard.

VII. Technical Amendment to 40 CFR Part 9

In compliance with the Paperwork Reduction Act (PRA), this technical correction amends the table that lists the OMB control numbers issued under the PRA for this final rule.

The EPA is today amending the table in 40 CFR part 9 (section 9.1) of currently approved information collection request (ICR) control numbers issued by OMB for various regulations. The affected regulations are codified at 40 CFR part 63 subpart MMM, §§ 63.1366 and 63.1367 (recordkeeping and reporting requirements, respectively). The OMB control (tracking) number for this final rule is 2060–0370. The EPA will continue to present OMB control numbers in a consolidated table format to be codified in 40 CFR part 9 of the Agency's regulations and in each CFR volume containing EPA regulations. The table lists the section numbers with reporting and recordkeeping requirements and the current OMB control numbers. The listing of the OMB control numbers and their subsequent codification in the CFR satisfies the requirements of the PRA (44 U.S.C. 3501 *et seq.*) and OMB's implementing regulations at 5 CFR part 1320.

This ICR was previously subject to public notice and comment prior to OMB approval. As a result, EPA finds that there is "good cause" under section 553(b)(B) of the Administrative Procedure Act (5 U.S.C. 553(b)(B)) to amend this table without prior notice and comment. Due to the technical nature of the table, further notice and comment would be unnecessary.

VIII. Administrative Requirements

A. Docket

The docket is an organized and complete file of all the information submitted to or otherwise considered by EPA in the development of the final standards. The principal purposes of the docket are:

(1) To allow interested parties to readily identify and locate documents so that they can intelligently and effectively participate in the rulemaking process; and

(2) To serve as the record in case of judicial review (except for interagency review materials (section 307(d)(7)(A))).

B. Executive Order 12866

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of this Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

Pursuant to the terms of Executive Order 12866, the OMB has notified EPA that it considers this a "significant regulatory action" under criterion number four of the Executive Order. The EPA submitted this action for OMB review. The OMB cleared this action without any comments.

C. Executive Order 12875

Under Executive Order 12875, EPA may not issue a regulation that is not required by statute that creates a mandate upon a State, local, or tribal government, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by those governments, or

EPA consults with those governments. If EPA complies by consulting, Executive Order 12875 requires EPA to provide to the Office of Management and Budget a description of the extent of EPA's prior consultation with representatives of affected State, local, and tribal governments, the nature of their concerns, any written communication from the governments, and a statement supporting the need to issue the regulation. In addition, Executive Order 12875 requires EPA to develop an effective process permitting elected officials and other representatives of State, local, and tribal governments "to provide meaningful and timely input in the development of regulatory proposals containing significant unfunded mandates."

Today's rule does not create a mandate on State, local, or tribal governments. The rule does not impose any enforceable duties on these entities because they do not own or operate sources subject to this rule and therefore are not required to purchase control systems to meet the requirements of this rule. Accordingly, the requirements of section 1(a) of Executive Order 12875 do not apply to this rule.

D. Executive Order 13084

Under Executive Order 13084, EPA may not issue a regulation that is not required by statute that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide to the Office of Management and Budget in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's rule does not significantly or uniquely affect the communities of Indian tribal governments. The rule does not affect these entities because they do not own or operate sources subject to this rule and therefore are not required to purchase control systems to meet the requirements of this rule. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

E. Paperwork Reduction Act

The OMB has approved the information collection requirements contained in this rule under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* and has assigned OMB Control Number 2060–0370.

The EPA is required under section 112(d) of the CAA to regulate emissions of HAP listed in section 112(b). The requested information is needed as part of the overall compliance and enforcement program. The ICR requires that pesticide active ingredient production facilities retain records of control device monitoring and records of HAP emissions calculations at facilities for a period of 5 years, which is consistent with the General Provisions to 40 CFR part 63 and the operating permit requirements under 40 CFR part 70. All sources subject to this rule will be required to obtain operating permits either through the State-approved permitting program or, if one does not exist, in accordance with the provisions of 40 CFR part 71, when promulgated.

The public reporting burden for this collection of information is estimated to average 289 hours per respondent for each of the first 3 years following promulgation. Beginning in the fourth year after promulgation, existing facilities must comply with the monitoring requirements, which will result in a significant increase in the burden to the industry. It is also estimated that there are approximately 82 facilities that are likely respondents. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to: review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR Chapter 15. The EPA is amending Table 9.1 in 40 CFR part 9 of currently approved ICR control numbers issued by OMB for various regulations to list the information collection requirements contained in this final rule.

F. Regulatory Flexibility

The EPA has determined that it is not necessary to prepare a regulatory flexibility analysis in connection with this final rule. The EPA has also determined that this rule will not have a significant economic impact on a substantial number of small entities.

In screening the potential impacts on small entities, the EPA found that there are three companies operating in the PAI production industry that will be subject to the final rule that are considered "small" businesses as defined by the Small Business Administration (SBA). The SBA defines small businesses in SIC 2879 as a firm with fewer than 500 employees. The majority of facilities are owned by large chemical manufacturers having greater than 500 employees. In all instances, the average total annual cost for each of the affected small firms is less than 3 percent of company-wide sales revenues. The screening analysis for this rule is detailed in the Economic Impact Analysis and a subsequent memorandum (see Docket No. A–95–20, Docket item no. II–A–20 and IV–B–7).

G. Unfunded Mandates

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Pub. L. 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments, and the private sector. Under Section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section

205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

The EPA has determined that the final standards do not include a Federal mandate that may result in expenditures of $100 million or more by either State, local, or tribal governments, in the aggregate, or by the private sector, in any 1 year. The rule does not impose any enforceable duties on State, local, or tribal governments because they do not own or operate sources subject to this rule and therefore are not required to purchase control systems to meet the requirements of this rule. The annual economic impact on the private sector will be far less than $100 million—the estimated cost impact is $39.4 million/yr, as discussed in section IV.D. of today's final rule. The rule also contains no requirements that will significantly or uniquely impact small governments; the rule contains no requirements that apply to such governments or impose obligations upon them. Therefore, the requirements of the UMRA do not apply to this final rule.

H. Submission to Congress and the Comptroller General Office

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. This rule is not a "major rule" as defined by 5 U.S.C. § 804(2).

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA), Pub. L. 104–113 (March 7, 1996), directs all Federal agencies to use voluntary consensus standards in regulatory and procurement activities unless to do so would be inconsistent with applicable law or otherwise impracticable. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) developed or adopted by one or more voluntary consensus bodies. The NTTAA requires Federal agencies to provide Congress, through annual reports to OMB, with explanations when an agency does not use available and applicable voluntary consensus standards. This section summarizes the EPA's response to the requirements of the NTTAA for the analytical and test methods to be required by today's final rule.

Consistent with the NTTAA, the EPA conducted a search to identify voluntary consensus standards. The search identified 22 voluntary consensus standards that appeared to have possible use in lieu of EPA standard reference methods in this rule. However, after reviewing available standards, EPA determined that 14 of the candidate consensus standards identified for measuring emissions of the HAP or surrogates subject to emission standards in the rule would not be practical due to lack of equivalency, documentation, validation data or other important technical and policy considerations. Eight of the remaining candidate consensus standards are new standards under development that EPA plans to follow, review, and consider adopting at a later date.

One consensus standard, ASTM Z7420Z, is potentially practical for EPA use in lieu of EPA Method 18 (See 40 CFR Part 60, Appendix A). At the time of EPA's search, the ASTM standard was still under development and EPA had provided comments on the method. The EPA also compared a draft of this ASTM standard to methods previously approved as alternatives to EPA Method 18 with specific applicability limitations. These methods, designated as ALT–017 and CTM–028, are available through EPA's Emission Measurement Center Internet site at www.epa.gov/ttn/emc/tmethods.html. The proposed ASTM Z7420Z standard is very similar to these approved alternative methods. When finalized and adopted by ASTM, the standard may be equally suitable for specific applications. However, this rule does not adopt the ASTM standard as it is not practical to do so until the potential candidate is final and EPA has reviewed the final standard. The EPA plans to continue to follow the progress of the standard and will consider adopting the ASTM standard at a later date.

This final rule requires standard EPA methods known to the industry and States. Approved alternative methods also may be used with prior EPA approval.

J. Executive Order 13045

Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks" (62 FR 19885, April 23, 1997), applies to any rule that: (1) is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5–501 of the Executive Order has the potential to influence the regulation. Today's final rule falls into that category only in part: the minimum rule stringency is set according to a congressionally-mandated, technology-based lower limit called the "floor," while a decision to increase the stringency beyond this floor can be based on risk considerations only to the extent that the Agency may consider the inherent toxicity of a regulated pollutant, and any differential impact such a pollutant may have on children's health, in deciding whether to adopt control requirements more stringent than floor level.

Today's final rule is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866. No children's risk analysis was performed for this rulemaking because no alternative technologies exist that would provide greater stringency at a reasonable cost, and therefore the results of any such analysis would have no impact on the stringency decision. The MACT floor and regulatory alternatives more stringent than the floor for process

vents, storage vessels, equipment leaks, and wastewater systems are presented in Chapters 6 and 8 of the Basis and Purpose Document and related memoranda (Docket A-95-20, Docket items II-B-21, III-B-1, IV-B-2, and IV-B-3). For each of the four types of emission points, the standards are based on the most stringent alternative for which the cost was determined to be reasonable.

List of Subjects

40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Reporting and recordkeeping requirements.

Dated: May 13, 1999.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, parts 9 and 63 of title 40, chapter I, of the Code of Federal Regulations are amended as follows:

PART 9—[AMENDED]

1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 *et seq.*, 136–136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601–2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-1, 300j-2, 300j-3, 300j-4, 300j-9, 1857 *et seq.*, 6901–6992k, 7401–7671g, 7542, 9601–9657, 11023, 11048.

2. Section 9.1 is amended by adding in numerical order a new entry to the table under the indicated heading to read as follows:

§ 9.1 OMB approvals under the Paperwork Reduction Act.

* * * * * * *

40 CFR citation	OMB Control No.
* * * * * * *	
National Emission Standards for Hazardous Air Pollutants for Source Categories.[3]	
* * * * * * *	
63.1367–63.1368	2060–0370
* * * * * * *	

[3] The ICR's referenced in this section of the table encompass the applicable General Provisions contained in 40 CFR part 63, subpart A, which are not independent information collection requirements.

PART 63—[AMENDED]

1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401, *et. seq.*

2. Part 63 is amended by adding a new subpart MMM to read as follows:

Subpart MMM—National Emission Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production

Sec.

63.1360 Applicability.
63.1361 Definitions.
63.1362 Standards.
63.1363 Standards for equipment leaks.
63.1364 Compliance dates.
63.1365 Test methods and initial compliance procedures.
63.1366 Monitoring and inspection requirements.
63.1367 Recordkeeping requirements.
63.1368 Reporting requirements.
63.1369 Delegation of authority.

Table 1 to Subpart MMM of part 63—General Provisions Applicability to Subpart MMM.

Table 2 to Subpart MMM of part 63—Standards for New and Existing PAI Production.

Table 3 to Subpart MMM of Part 63—Monitoring Requirements for Control Devices.

Table 4 to Subpart MMM of Part 63—Control Requirements for Items of Equipment that Meet the Criteria of § 63.1362(k).

Subpart MMM—National Emission Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production

§ 63.1360 Applicability.

(a) *Definition of affected source.* The affected source subject to this subpart is the facility-wide collection of pesticide active ingredient manufacturing process units (PAI process units) that process, use, or produce HAP, and are located at a plant site that is a major source, as defined in section 112(a) of the CAA. An affected source also includes waste management units, heat exchange systems, and cooling towers that are associated with the PAI process units. Exemptions from an affected source are specified in paragraph (d) of this section.

(b) *New source applicability.* A new affected source subject to this subpart and to which the requirements for new sources apply is defined according to the criteria in either paragraph (b)(1) or (2) of this section.

(1) An affected source for which construction or reconstruction commenced after November 10, 1997.

(2) Any single PAI process unit that:

(i) Is not part of a process unit group; and

(ii) For which construction, as defined in § 63.1361, commenced after November 10, 1997; and

(iii) Has the potential to emit 10 tons/yr of any one HAP or 25 tons/yr of combined HAP.

(c) *General provisions.* Table 1 of this subpart specifies the provisions of subpart A of this part that apply to an owner or operator of an affected source subject to this subpart, and clarifies specific provisions in subpart A of this part as necessary for this subpart.

(d) *Exemptions from the requirements of this subpart.* The provisions of this subpart do not apply to:

(1) Research and development facilities;

(2) PAI process units that are subject to subpart F of this part;

(3) Production of ethylene; and

(4) The following emission points listed:

(i) Storm water from segregated sewers;

(ii) Water from fire-fighting and deluge systems, including testing of such systems;

(iii) Spills;

(iv) Water from safety showers;

(v) Noncontact steam boiler blowdown and condensate;

(vi) Laundry water;

(vii) Vessels storing material that contains no organic HAP or contains organic HAP as impurities only; and

(viii) Equipment, as defined in § 63.1363, that is intended to operate in organic HAP service for less than 300 hours during the calendar year.

(e) *Applicability of this subpart except during periods of startup, shutdown, and malfunction.* (1) Each provision set forth in this subpart shall apply at all times except that emission limitations shall not apply during periods of startup, shutdown, and malfunction, as defined in § 63.1361, if:

(i) The startup, shutdown, or malfunction precludes the ability of the owner or operator of an affected source to comply with one or more specific emission limitations to which a particular emission point is subject; and

(ii) The owner or operator follows the provisions for periods of startup, shutdown, and malfunction, as specified in §§ 63.1367(a)(3) and 63.1368(i).

(2) The provisions set forth in § 63.1363 shall apply at all times except during periods of nonoperation of the PAI process unit (or specific portion thereof) in which the lines are drained and depressurized resulting in the cessation of the emissions to which § 63.1363 applies.

(3) The owner or operator shall not shut down items of equipment that are required or utilized for compliance with the emissions limitations of this subpart during times when emissions (or, where applicable, wastewater streams or residuals) are being routed to such items of equipment, if the shutdown would contravene emissions limitations of this subpart applicable to such items of equipment. This paragraph does not apply if the item of equipment is malfunctioning, or if the owner or operator must shut down the equipment to avoid damage due to a malfunction of the PAI process unit or portion thereof.

(4) During startups, shutdowns, and malfunctions when the emissions limitations of this subpart do not apply pursuant to paragraphs (e)(1) through (3) of this section, the owner or operator shall implement, to the extent reasonably available, measures to prevent or minimize excess emissions. For purposes of this paragraph, "excess emissions" means emissions in excess of those that would have occurred if there were no startup, shutdown, or malfunction and the owner or operator complied with the relevant provisions of this subpart. The measures to be taken shall be identified in the applicable startup, shutdown, and malfunction plan, and may include, but are not limited to, air pollution control technologies, work practices, pollution prevention, monitoring, and/or changes in the manner of operation of the source. Back-up control devices are not required, but may be used if available.

(f) *Storage vessel applicability determination.* An owner or operator shall follow the procedures specified in paragraphs (f)(1) through (4) of this section to determine whether a storage vessel is part of the affected source to which this subpart applies.

(1) If a storage vessel is already subject to another subpart of 40 CFR part 63 on June 23, 1999, the storage vessel shall belong to the process unit subject to the other subpart.

(2) Unless otherwise excluded under paragraph (f)(1) of this section, the storage vessel is part of a PAI process unit if either the input to the vessel from the PAI process unit is greater than or equal to the input from any other PAI or non-PAI process unit, or the output from the vessel to the PAI process unit is greater than or equal to the output to any other PAI or non-PAI process unit. If the greatest input to and/or output from a shared storage vessel is the same for two or more process units, including at least one PAI process unit, the owner or operator may assign the storage vessel to any one of the PAI process units that meet this condition. If the use varies from year to year, then the use for purposes of this subpart for existing sources shall be based on the utilization that occurred during the year preceding June 23, 1999 or, if the storage vessel was not in operation during that year, the use shall be based on the expected use in the 5 years after startup. This determination shall be reported as part of an operating permit application or as otherwise specified by the permitting authority.

(3) Unless otherwise excluded under paragraph (f)(1) of this section, where a storage vessel is located in a tank farm (including a marine tank farm), the applicability of this subpart shall be determined according to the provisions in paragraphs (f)(3)(i) through (iv) of this section.

(i) The storage vessel may only be assigned to a process unit that utilizes the storage vessel and does not have an intervening storage vessel for that product (or raw material, as appropriate). With respect to a process unit, an intervening storage vessel means a storage vessel connected by hard-piping to the process unit and to the storage vessel in the tank farm so that product or raw material entering or leaving the process unit flows into (or from) the intervening storage vessel and does not flow directly into (or from) the storage vessel in the tank farm.

(ii) If no PAI process unit meets the criteria of paragraph (f)(3)(i) of this section with respect to a storage vessel, this subpart does not apply to the storage vessel.

(iii) If only one PAI process unit, and no non-PAI process unit, meets the criteria of paragraph (f)(3)(i) of this section with respect to a storage vessel, the storage vessel shall be assigned to that PAI process unit.

(iv) If two or more process units, including at least one PAI process unit, meet the criteria of paragraph (f)(3)(i) of this section with respect to a storage vessel, the storage vessel shall be assigned to one of those process units according to the provisions of paragraph (f)(2) of this section. The input and output shall be determined among only those process units that meet the criteria of paragraph (f)(3)(i) of this section. If the storage vessel is not assigned to a PAI process unit according to the provisions of paragraph (f)(2) of this section, this subpart does not apply to the storage vessel.

(4) If the storage vessel begins receiving material from (or sending material to) another process unit, or ceasing to receive material from (or send material to) a PAI process unit, or if the applicability of this subpart has been determined according to the provisions of paragraph (f)(2) of this section, and there is a significant change in the use of the storage vessel, the owner or operator shall reevaluate the ownership determination for the storage vessel.

(g) *Designating production of an intermediate as a PAI process unit.* Except as specified in paragraph (d) of this section, an owner or operator may elect to designate production of any intermediate that does not meet the definition of integral intermediate as a PAI process unit subject to this subpart. Any storage vessel containing the intermediate is assigned to a PAI process unit according to the procedures in paragraph (f) of this section. Any process tank containing the intermediate is part of the process unit used to produce the intermediate.

(h) *Applicability of process units included in a process unit group.* (1) If any of the products produced in the process unit group are subject to 40 CFR part 63, subpart GGG (Pharmaceuticals MACT), the owner or operator may elect to comply with the requirements of subpart GGG for the PAI process unit(s) within the process unit group, except for the following:

(i) The emission limit standard for process vents in § 63.1362(b)(2)(i) shall apply in place of § 63.1254(a)(1) of subpart GGG of this part;

(ii) When the date of April 2, 1997 is provided in § 63.1254(a)(iii) of subpart GGG of this part, the date of June 23, 1999 shall apply for purposes of this subpart; and

(iii) Requirements in § 63.1367(a)(5) regarding application for approval of construction or reconstruction shall apply in place of the provisions in § 63.1259(a)(5) of subpart GGG of this part.

(2) If the primary product of a process unit group is determined to be a material that is subject to another subpart of 40 CFR part 63 on June 23, 1999 or startup of the process unit group, whichever is later, the owner or operator may elect to comply with the other subpart for any PAI process unit within the process unit group.

(3) The primary product of the process unit group shall be determined according to paragraphs (h)(3)(i) and (ii) of this section.

(i) The primary product is the product that is produced for the greatest operating time over a 5 year period, based on expected utilization for the 5 years following the compliance date or following initial startup of the process unit group, whichever is later; or

(ii) If the process unit group produces multiple products equally based on operating time, then the product with the greatest production on a mass basis over 5 years shall represent the primary product of the process unit, based on expected utilization for the 5 years following the compliance date or following initial startup of the unit or unit group, whichever is later.

(i) *Overlap with other regulations.* (1) *Overlap with other MACT standards.* After the compliance dates specified in § 63.1364, an affected source subject to the provisions of this subpart that is also subject to the provisions of any other subpart of 40 CFR part 63 may elect, to the extent the subparts are consistent, under which subpart to maintain records and report to EPA. The affected source shall identify in the Notification of Compliance Status report required by § 63.1368(f) under which authority such records will be maintained.

(2) *Overlap with RCRA subparts AA, BB, and/or CC.* After the compliance dates specified in § 63.1364, if any affected source subject to this subpart is also subject to monitoring, recordkeeping, and reporting requirements in 40 CFR part 264, subpart AA, BB, or CC, or is subject to monitoring and recordkeeping requirements in 40 CFR part 265, subpart AA, BB, or CC, and the owner or operator complies with the periodic reporting requirements under 40 CFR part 264, subpart AA, BB, or CC that would apply to the device if the facility had final-permitted status, the owner or operator may elect to comply either with the monitoring, recordkeeping, and reporting requirements of this subpart, or with the monitoring, recordkeeping, and reporting requirements in 40 CFR parts 264 and/or 265, as described in this paragraph, which shall constitute compliance with the monitoring, recordkeeping, and reporting requirements of this subpart. If the owner or operator elects to comply with the monitoring, recordkeeping, and reporting requirements in 40 CFR parts 264 and/or 265, the owner or operator shall report all excursions as required by § 63.1368(g). The owner or operator shall identify in the Notification of Compliance Status report required by § 63.1368(f) the monitoring, recordkeeping, and reporting authority under which the owner or operator will comply.

(3) *Overlap with NSPS subpart Kb.* After the compliance dates specified in § 63.1364, a Group 1 or Group 2 storage vessel that is also subject to the provisions of 40 CFR part 60, subpart Kb, is required to comply only with the provisions of this subpart MMM.

(4) *Overlap with subpart I.* After the compliance dates specified in § 63.1364, for all equipment within a process unit that contains equipment subject to subpart I of this part, an owner or operator may elect to comply with either the provisions of this subpart MMM or the provisions of subpart H of this part. The owner or operator shall identify in the Notification of Compliance Status report required by § 63.1368(f) the provisions with which the owner or operator elects to comply.

(5) *Overlap with RCRA regulations for wastewater.* After the compliance dates specified in § 63.1364, the owner or operator of an affected wastewater stream that is also subject to provisions in 40 CFR parts 260 through 272 shall comply with the more stringent control requirements (e.g., waste management units, numerical treatment standards, etc.) and the more stringent testing, monitoring, recordkeeping, and reporting requirements that overlap between the provisions of this subpart and the provisions of 40 CFR parts 260 through 272. The owner or operator shall keep a record of the information used to determine which requirements were the most stringent and shall submit this information if requested by the Administrator.

(6) *Overlap with NSPS subparts III, NNN, and RRR.* After the compliance dates specified in § 63.1364, if an owner or operator of a process vent subject to this subpart MMM that is also subject to the provisions of 40 CFR part 60, subpart III, or subpart NNN, or subpart RRR, elects to reduce organic HAP emissions from the process vent by 98 percent as specified in § 63.1362(b)(2)(iii)(A), then the owner or operator is required to comply only with the provisions of this subpart MMM. Otherwise, the owner or operator shall comply with the provisions in both this subpart MMM and the provisions in 40 CFR part 60, subparts III, NNN, and RRR, as applicable.

(j) *Meaning of periods of time.* All terms in this subpart MMM that define a period of time for completion of required tasks (e.g., weekly, monthly, quarterly, annual), unless specified otherwise in the section or subsection that imposes the requirement, refer to the standard calendar periods.

(1) Notwithstanding time periods specified in the subpart MMM for completion of required tasks, such time periods may be changed by mutual agreement between the owner and operator and the Administrator, as specified in subpart A of this part (e.g., a period could begin on the compliance date or another date, rather than on the first day of the standard period). For each time period that is changed by agreement, the revised period shall remain in effect until it is changed. A new request is not necessary for each recurring period.

(2) Where the period specified for compliance is a standard calendar period, if the initial compliance date occurs after the beginning of the period, compliance shall be required according to the schedule specified in paragraph (j)(2)(i) or (ii) of this section, as appropriate.

(i) Compliance shall be required before the end of the standard calendar period within which the compliance deadline occurs, if there remain at least 3 days for tasks that must be performed weekly, at least 2 weeks for tasks that must be performed monthly, at least 1 month for tasks that must be performed each quarter, or at least 3 months for tasks that must be performed annually; or

(ii) In all other cases, compliance shall be required before the end of the first full standard calendar period within which the initial compliance deadline occurs.

(3) In all instances where a provision of this subpart MMM requires completion of a task during each of multiple successive periods, an owner or operator may perform the required task at any time during the specified period, provided the task is conducted at a reasonable interval after completion of the task in the previous period.

§ 63.1361 Definitions.

Terms used in this subpart are defined in the CAA, in subpart A of this part, or in this section. If the same term is defined in subpart A of this part and in this section, it shall have the meaning given in this section for the purposes of this subpart MMM.

Air pollution control device or control device means equipment installed on a process vent, storage vessel, wastewater treatment exhaust stack, or combination thereof that reduces the mass of HAP emitted to the air. The equipment may consist of an individual device or a series of devices. Examples include incinerators, carbon adsorption units, condensers, flares, boilers, process heaters, and gas absorbers. Process condensers are not considered air pollution control devices or control devices.

Bag dump means equipment into which bags or other containers containing a powdered, granular, or other solid feedstock material are emptied. A bag dump is part of the process.

Batch emission episode means a discrete venting episode that is associated with a single unit operation. A unit operation may have more than one batch emission episode. For example, a batch distillation unit operation may consist of batch emission episodes associated with charging and heating. Charging the vessel with HAP will result in one discrete batch emission episode that will last through the duration of the charge and will have an average flowrate equal to the rate of the charge. Another discrete batch emission episode will result from the expulsion of expanded vapor as the contents of the vessel are heated.

Batch operation means a noncontinuous operation involving intermittent or discontinuous feed into PAI or integral intermediate manufacturing equipment, and, in general, involves the emptying of the equipment after the batch operation ceases and prior to beginning a new operation. Addition of raw material and withdrawal of product do not occur simultaneously in a batch operation. A batch process consists of a series of batch operations.

Bench-scale batch process means a batch process (other than a research and development facility) that is capable of being located on a laboratory bench top. This bench-scale equipment will typically include reagent feed vessels, a small reactor and associated product separator, recovery and holding equipment. These processes are only capable of producing small quantities of product.

Block means a time period equal to, at a maximum, the duration of a single batch.

Car seal means a seal that is placed on a device that is used to change the position of a valve (e.g., from opened to closed) in such a way that the position of the valve cannot be changed without breaking the seal.

Cleaning operation means routine rinsing, washing, or boil-off of equipment in batch operations between batches.

Closed-loop system means an enclosed system that returns process fluid to the process and is not vented to the atmosphere except through a closed-vent system.

Closed-purge system means a system or combination of system and portable containers, to capture purged liquids. Containers must be covered or closed when not being filled or emptied.

Closed-vent system means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission point to a control device.

Combustion device means an individual unit of equipment, such as a flare, incinerator, process heater, or boiler, used for the combustion of organic HAP vapors.

Connector means flanged, screwed, or other joined fittings used to connect two pipe lines or a pipe line and a piece of equipment. A common connector is a flange. Joined fittings welded completely around the circumference of the interface are not considered connectors for the purpose of this regulation. For the purpose of reporting and record keeping, connector means joined fittings that are not inaccessible, ceramic, or ceramic-lined as described in § 63.1255(b)(1)(vii) and 63.1255(f)(3).

Construction means the onsite fabrication, erection, or installation of an affected source or PAI process unit. Addition of new equipment to an existing PAI process unit does not constitute construction.

Consumption means the makeup quantity of HAP entering a process that is not used as reactant. The quantity of material used as reactant is the theoretical amount needed assuming a 100 percent stoichiometric conversion. Makeup is the net amount of material that must be added to the process to replenish losses.

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.

Continuous process means a process where the inputs and outputs flow continuously throughout the duration of the process. Continuous processes typically approach steady state.

Continuous seal means a seal that forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the floating roof. A continuous seal may be a vapor-mounted, liquid-mounted, or metallic shoe seal.

Controlled HAP emissions means the quantity of HAP components discharged to the atmosphere from an air pollution control device.

Cover, as used in the wastewater provisions, means a device or system which is placed on or over a waste management unit containing wastewater or residuals so that the entire surface area is enclosed to minimize air emissions. A cover may have openings necessary for operation, inspection, and maintenance of the waste management unit such as access hatches, sampling ports, and gauge wells provided that each opening is closed when not in use. Examples of covers include a fixed roof installed on a wastewater tank, a lid installed on a container, and an air-supported enclosure installed over a waste management unit.

Double block and bleed system means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

Duct work means a conveyance system such as those commonly used for heating and ventilation systems. It is often made of sheet metal and often has sections connected by screws or crimping. Hard-piping is not ductwork.

Equipment, for purposes of § 63.1363, means each pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, connector, and instrumentation system in organic hazardous air pollutant service.

External floating roof means a pontoon-type or double-deck type cover that rests on the liquid surface in a storage tank or waste management unit with no fixed roof.

FIFRA means the Federal Insecticide, Fungicide, and Rodenticide Act.

Fill or filling means the introduction of organic HAP into a storage tank or the introduction of a wastewater stream or residual into a waste management unit, but not necessarily to complete capacity.

First attempt at repair means to take action for the purpose of stopping or

reducing leakage of organic material to the atmosphere.

Fixed roof means a cover that is mounted on a waste management unit or storage tank in a stationary manner and that does not move with fluctuations in liquid level.

Flame ionization detector (FID) means a device in which the measured change in conductivity of a standard flame (usually hydrogen) due to the insertion of another gas or vapor is used to detect the gas or vapor.

Floating roof means a cover consisting of a double deck, pontoon single deck, internal floating cover or covered floating roof, which rests upon and is supported by the liquid being contained, and is equipped with a continuous seal or seals to close the space between the roof edge and waste management unit or storage vessel wall.

Flow indicator means a device that indicates whether gas flow is, or whether the valve position would allow gas flow to be, present in a line.

Group 1 process vent means any process vent from a process at an existing or new affected source for which the uncontrolled organic HAP emissions from the sum of all process vents are greater than or equal to 0.15 Mg/yr and/or the uncontrolled hydrogen chloride (HCl) and chlorine emissions from the sum of all process vents are greater than or equal to 6.8 Mg/yr.

Group 2 process vent means any process vent that does not meet the definition of a Group 1 process vent.

Group 1 storage vessel means a storage vessel at an existing affected source with a capacity equal to or greater than 75 m^3 and storing material with a maximum true vapor pressure greater than or equal to 3.45 kPa, or a storage vessel at a new affected source with a capacity equal to or greater than 40 m^3 and storing material with a maximum true vapor pressure greater than or equal to 16.5 kPa and with a capacity greater than or equal to 75 m^3 and storing material with a maximum true vapor pressure greater than or equal to 3.45 kPa.

Group 2 storage vessel means a storage vessel that does not meet the definition of a Group 1 storage vessel.

Group 1 wastewater stream means process wastewater at an existing or new source that meets the criteria for Group 1 status in § 63.132(c) of subpart G of this part for compounds in Table 9 of subpart G of this part or a maintenance wastewater stream that contains 5.3 Mg of HAP per discharge event.

Group 2 wastewater stream means any wastewater stream that does not meet the definition of a Group 1 wastewater stream.

Group of processes means all of the equipment associated with processes in a building, processing area, or facility-wide. A group of processes may consist of a single process.

Halogenated compounds means organic compounds that contain chlorine atoms.

Halogenated vent stream means a process, storage vessel, or waste management unit vent stream determined to have a concentration of halogenated compounds of greater than 20 ppmv, as determined through process knowledge, test results using Method 18 of 40 CFR part 60, appendix A, or test results using any other test method that has been validated according to the procedures in Method 301 of appendix A of this part.

Hard-piping means piping or tubing that is manufactured and properly installed using good engineering judgment and standards, such as ANSI B31-3.

Impurity means a substance that is produced coincidentally with the product(s), or is present in a raw material. An impurity does not serve a useful purpose in the production or use of the product(s) and is not isolated.

In gas/vapor service means that a piece of equipment in organic HAP service contains a gas or vapor at operating conditions.

In heavy liquid service means that a piece of equipment in organic HAP service is not in gas/vapor service or in light liquid service.

In light liquid service means that a piece of equipment in organic HAP service contains a liquid that meets the following conditions:

(1) The vapor pressure of one or more of the organic compounds is greater than 0.3 kPa at 20° C;

(2) The total concentration of the pure organic compounds constituents having a vapor pressure greater than 0.3 kPa at 20° C is equal to or greater than 20 percent by weight of the total process stream; and

(3) The fluid is a liquid at operating conditions.

Note: To definition of "In light liquid service: Vapor pressures may be determined by the methods described in 40 CFR 60.485(e)(1).

In liquid service means that a piece of equipment in organic HAP service is not in gas/vapor service.

In organic hazardous air pollutant or in organic HAP service means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight of total organic HAP as determined according to the provisions of § 63.180(d) of subpart H of this part. The provisions of § 63.180(d) of subpart H of this part also specify how to determine that a piece of equipment is not in organic HAP service.

In vacuum service means that equipment is operating at an internal pressure which is at least 5 kPa below ambient pressure.

In-situ sampling systems means nonextractive samplers or in-line samplers.

Individual drain system means the stationary system used to convey wastewater streams or residuals to a waste management unit or to discharge or disposal. The term includes: hard piping; all process drains and junction boxes; and associated sewer lines, other junction boxes, manholes, sumps, and lift stations conveying wastewater streams or residuals. A segregated stormwater sewer system, which is a drain and collection system designed and operated for the sole purpose of collecting rainfall-runoff at a facility, and which is segregated from all other individual drain systems, is excluded from this definition.

Instrumentation system means a group of equipment components used to condition and convey a sample of the process fluid to analyzers and instruments for the purpose of determining process operating conditions (e.g., composition, pressure, flow, etc.). Valves and connectors are the predominant type of equipment used in instrumentation systems; however, other types of equipment may also be included in these systems. Only valves nominally 0.5 inches and smaller and connectors nominally 0.75 inches and smaller in diameter are considered instrumentation systems for the purposes of this subpart. Valves greater than nominally 0.5 inches and connectors greater than nominally 0.75 inches associated with instrumentation systems are not considered part of instrumentation systems and must be monitored individually.

Integral intermediate means an intermediate for which 50 percent or more of the annual production is used in on-site production of any PAI(s) and that is not stored before being used in the production of another integral intermediate or the PAI(s). For the purposes of this definition, an intermediate is stored if it is discharged to a storage vessel and at least one of the following conditions is met: the processing equipment that discharges to the storage vessel is shutdown before the processing equipment that withdraws from the storage vessel is

started up; during an annual period, the material must be stored in the vessel for at least 30 days before being used to make a PAI; or the processing equipment that discharges to the storage vessel is located in a separate building (or processing area) of the plant than the processing equipment that uses material from the storage vessel as a feedstock, and control equipment is not shared by the two processing areas. Any process unit that produces an intermediate and is subject to subpart F of this part is not an integral intermediate.

Intermediate means an organic compound that is produced by chemical reaction and that is further processed or modified in one or more additional chemical reaction steps to produce another intermediate or a PAI.

Internal floating roof means a cover that rests or floats on the liquid surface (but not necessarily in complete contact with it) inside a storage tank or waste management unit that has a permanently affixed roof.

Junction box means a manhole or access point to a wastewater sewer system line or a lift station.

Large control device means a control device that controls process vents, and the total HAP emissions into the control device from all sources are greater than or equal to 10 tons/yr.

Liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel or waste management unit and the floating roof. The seal is mounted continuously around the tank or unit.

Liquids dripping means any visible leakage from the seal including dripping, spraying, misting, clouding, and ice formation. Indications of liquid dripping include puddling or new stains that are indicative of an existing evaporated drip.

Maintenance wastewater means wastewater generated by the draining of process fluid from components in the PAI process unit into an individual drain system prior to or during maintenance activities. Maintenance wastewater can be generated through planned or 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 low legs and high point bleeds, draining of pumps into an individual drain system, and draining of portions of the PAI process unit for repair.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, emissions monitoring equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused all or in part by poor maintenance or careless operation are not malfunctions.

Maximum true vapor pressure means 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 transferred 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:

(1) 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 in subpart A of this part); or

(2) As obtained from standard reference texts; or

(3) 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 of subpart A of this part); or

(4) Any other method approved by the Administrator.

Metallic shoe seal or mechanical shoe seal means metal sheets that are held vertically against the wall of the storage tank by springs, weighted levers, or other mechanisms and connected to the floating roof by braces or other means. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

Nonrepairable means that it is technically infeasible to repair a piece of equipment from which a leak has been detected without a process shutdown.

Open-ended valve or line means any valve, except pressure relief valves, having one side of the valve seat in contact with process fluid and one side open to atmosphere, either directly or through open piping.

Operating scenario, for the purposes of reporting and recordkeeping, means a description of a PAI process unit, including: identification of each wastewater point of determination (POD) and process vent, their associated emissions episodes and durations, and their associated level of control and control devices, as applicable; calculations and engineering analyses required to demonstrate compliance; and a description of operating and/or testing conditions for any associated control device.

Organic compound, as used in the definitions of intermediate and PAI, means any compound that contains both carbon and hydrogen with or without other elements.

Organic HAP means those HAP listed in section 112(b) of the CAA that are measured according to the procedures of Method 18 or Method 25A, 40 CFR part 60, appendix A.

Pesticide active ingredient or PAI means any material that is an active ingredient within the meaning of FIFRA section 2(a); that is used to produce an insecticide, herbicide, or fungicide end use pesticide product; that consists of one or more organic compounds; and that must be labeled in accordance with 40 CFR part 156 for transfer, sale, or distribution. These materials are typically described by North American Industrial Classification System (NAICS) Codes 325199 and 32532 (i.e., previously known as Standard Industrial Classification System Codes 2869 and 2879). These materials are identified by product classification codes 01, 21, 02, 04, 44, 07, 08, and 16 in block 19 on EPA form 3540–16, the Pesticides Report for Pesticide-Producing Establishments.

Pesticide active ingredient manufacturing process unit (PAI process unit) means a process unit that is used to produce a material that is primarily used as a PAI or integral intermediate. A PAI process unit consists of: the process, as defined in this subpart; associated storage vessels, as determined by the procedures in § 63.1360(f); equipment identified in § 63.1362(l); connected piping and ducts; and components such as pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems. A material is primarily used as a PAI or integral intermediate if more than 50 percent of the projected annual production from a process unit in the 3 years after June 23, 1999 or startup, whichever is later, is used as a PAI or integral intermediate; recordkeeping is required if the material is used as a PAI or integral intermediate, but not as the primary use. If the primary use changes to a PAI or integral intermediate, the process unit becomes a PAI process unit unless it is already subject to the HON. If the primary use changes from a PAI or integral intermediate to another use, the process unit remains a PAI process unit. Any process tank containing an

integral intermediate is part of the PAI process unit used to produce the integral intermediate. A process unit that produces an intermediate that is not an integral intermediate may be designated as a PAI process unit according to the procedures of § 63.1360(g). Formulation of pesticide products is not considered part of a PAI process unit. Quality assurance and quality control laboratories are not considered part of a PAI process unit.

Plant site means all contiguous or adjoining property that is under common control, including properties that are separated only by a road or other public right-of-way. Common control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination thereof.

Point of determination (POD) means each point where a wastewater stream exits the PAI process unit.

Note to definition of "point of determination": The regulation allows determination of the characteristics of a wastewater stream: at the point of determination; or downstream of the point of determination if corrections are made for changes in flow rate and annual average concentration of Table 9 compounds as determined in § 63.144 of subpart G of this part. Such changes include: losses by air emissions, reduction of annual average concentration or changes in flow rate by mixing with other water or wastewater streams, and reduction in flow rate or annual average concentration by treating or otherwise handling the wastewater stream to remove or destroy HAP.

Pressure release means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device. This release can be one release or a series of releases over a short time period due to a malfunction in the process.

Pressure relief device or valve means a safety device used to prevent operating pressures from exceeding the maximum allowable working pressure of the process equipment. A common pressure relief device is a spring-loaded pressure relief valve. Devices that are actuated either by a pressure of less than or equal to 2.5 pounds per square inch gauge or by a vacuum are not pressure relief devices.

Process means a logical grouping of processing equipment which collectively function to produce a product. For the purpose of this subpart, a PAI process includes all, or a combination of, reaction, recovery, separation, purification, treatment, cleaning, and other activities or unit operations, which are used to produce a PAI or integral intermediate. A PAI process and all integral intermediate processes for which 100 percent of the annual production is used in the production of the PAI may be linked together and defined as a single PAI process unit.

Process condenser means a condenser whose primary purpose is to recover material as an integral part of a unit operation. The condenser must cause a vapor-to-liquid phase change for periods during which the temperature of liquid in the process equipment is at or above its boiling or bubble point. Examples of process condensers include distillation condensers, reflux condensers, and condensers used in stripping or flashing operation. In a series of condensers, all condensers up to and including the first condenser with an exit gas temperature below the boiling or bubble point of the liquid in the process equipment are considered to be process condensers. All condensers in line prior to the vacuum source are included in this definition.

Process shutdown means a work practice or operational procedure that stops production from a process or part of a process during which it is technically feasible to clear process material from a process or part of a process consistent with safety constraints and during which repairs can be effected. An unscheduled work practice or operational procedure that stops production from a process or part of a process for less than 24 hours is not a process shutdown. An unscheduled work practice or operational procedure that would stop production from a process or part of a process for a shorter period of time than would be required to clear the process or part of the process of materials and start up the process, and would result in greater emissions than delay of repair of leaking components until the next scheduled process shutdown, is not a process shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping production are not process shutdowns.

Process tank means a tank that is used to collect material discharged from a feedstock storage vessel or equipment within the process and transfer of this material to other equipment within the process or a product storage vessel. Processing steps occur both upstream and downstream of the tank within a given process unit. Surge control vessels and bottoms receivers that fit these conditions are considered process tanks.

Process unit means the equipment assembled and connected by pipes or ducts to process raw materials and to manufacture an intended product.

Process unit group means a group of process units that manufacture PAI's and products other than PAI's by alternating raw materials or operating conditions, or by reconfiguring process equipment. Only process equipment that has been or could be part of a PAI process unit, because of its function or capacity, is included in a process unit group.

Process vent means a point of emission from processing equipment to the atmosphere or a control device. The vent may be the release point for an emission stream associated with an individual unit operation, or it may be the release point for emission streams from multiple unit operations that have been manifolded together into a common header. Examples of process vents include, but are not limited to, vents on condensers used for product recovery, bottom receivers, surge control vessels, reactors, filters, centrifuges, process tanks, and product dryers. A vent is not considered to be a process vent for a given emission episode if the undiluted and uncontrolled emission stream that is released through the vent contains less than 20 ppmv HAP, as determined through process knowledge that no HAP are present in the emission stream; using an engineering assessment as discussed in § 63.1365(b)(2)(ii); from test data collected using Method 1818 of 40 CFR part 60, appendix A; or from test data collected using any other test method that has been validated according to the procedures in Method 301 of appendix A of this part. Process vents do not include vents on storage vessels regulated under § 63.1362(c), vents on wastewater emission sources regulated under § 63.1362(d), or pieces of equipment regulated under § 63.1363.

Process wastewater means wastewater which, during manufacturing or processing, comes into direct contact with, or results from, the production or use of any raw material, intermediate product, finished product, by-product, or waste product. Examples include: product tank drawdown or feed tank drawdown; water formed during a chemical reaction or used as a reactant; water used to wash impurities from organic products or reactants; water used to clean process equipment; water used to cool or quench organic vapor streams through direct contact; and condensed steam from jet ejector systems pulling vacuum on vessels containing organics.

Product means the compound(s) or chemical(s) that are produced or manufactured as the intended output of a process unit. Impurities and wastes are not considered products.

Product dryer means equipment that is used to remove moisture or other liquid from granular, powdered, or other solid PAI or integral intermediate products prior to storage, formulation, shipment, or other uses. The product dryer is part of the process.

Product dryer vent means a process vent from a product dryer through which a gas stream containing gaseous pollutants (i.e., organic HAP, HCl, or chlorine), particulate matter, or both are released to the atmosphere or are routed to a control device.

Production-indexed HAP consumption factor (HAP factor) is the result of dividing the annual consumption of total HAP by the annual production rate, per process.

Production-indexed VOC consumption factor (VOC factor) is the result of dividing the annual consumption of total VOC by the annual production rate, per process.

Publicly owned treatment works (POTW) is defined at 40 CFR part 403.3(0).

Reactor means a device or vessel in which one or more chemicals or reactants, other than air, are combined or decomposed in such a way that their molecular structures are altered and one or more new organic compounds are formed.

Recovery device, as used in the wastewater provisions, means an individual unit of equipment capable of, and normally used for the purpose of, recovering chemicals for fuel value (i.e., net positive heating value), use, reuse, or for sale for fuel value, use, or reuse. Examples of equipment that may be recovery devices include organic removal devices such as decanters, strippers, or thin-film evaporation units. To be a recovery device, a decanter and any other equipment based on the operating principle of gravity separation must receive only two-phase liquid streams.

Repaired means that equipment is adjusted, or otherwise altered, to eliminate a leak as defined in the applicable paragraphs of § 63.1363.

Research and development facility means any stationary source whose primary purpose is to conduct research and development, where the operations are under the close supervision of technically trained personnel, and is not engaged in the manufacture of products for commercial sale, except in a de minimis manner.

Residual means any liquid or solid material containing Table 9 compounds (as defined in § 63.111 of subpart G of this part) that is removed from a wastewater stream by a waste management unit or treatment process that does not destroy organics (nondestructive unit). Examples of residuals from nondestructive wastewater management units include the organic layer and bottom residue removed by a decanter or organic-water separator and the overheads from a steam stripper or air stripper. Examples of materials which are not residuals include: silt; mud; leaves; bottoms from a steam stripper or air stripper; and sludges, ash, or other materials removed from wastewater being treated by destructive devices such as biological treatment units and incinerators.

Safety device means a closure device such as a pressure relief valve, frangible disc, fusible plug, or any other type of device which functions exclusively to prevent physical damage or permanent deformation to a unit or its air emission control equipment by venting gases or vapors directly to the atmosphere during unsafe conditions resulting from an unplanned, accidental, or emergency event. For the purposes of this subpart, a safety device is not used for routine venting of gases or vapors from the vapor headspace underneath a cover such as during filling of the unit or to adjust the pressure in this vapor headspace in response to normal daily diurnal ambient temperature fluctuations. A safety device is designed to remain in a closed position during normal operations and open only when the internal pressure, or another relevant parameter, exceeds the device threshold setting applicable to the air emission control equipment as determined by the owner or operator based on manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, combustible, explosive, reactive, or hazardous materials.

Sampling connection system means an assembly of equipment within a process unit used during periods of representative operation to take samples of the process fluid. Equipment used to take nonroutine grab samples is not considered a sampling connection system.

Sensor means a device that measures a physical quantity or the change in a physical quantity, such as temperature, pressure, flow rate, pH, or liquid level.

Set pressure means the pressure at which a properly operating pressure relief device begins to open to relieve atypical process system operating pressure.

Sewer line means a lateral, trunk line, branch line, or other conduit including, but not limited to, grates, trenches, etc., used to convey wastewater streams or residuals to a downstream waste management unit.

Shutdown means the cessation of operation of a continuous PAI process unit for any purpose. Shutdown also means the cessation of a batch PAI process unit or any related individual piece of equipment required or used to comply with this part or for emptying and degassing storage vessels for periodic maintenance, replacement of equipment, repair, or any other purpose not excluded from this definition. Shutdown does not apply to cessation of a batch PAI process unit at the end of a campaign or between batches (e.g., for rinsing or washing equipment), for routine maintenance, or for other routine operations.

Small control device means a control device that controls process vents, and the total HAP emissions into the control device from all sources are less than 10 tons of HAP per year.

Startup means the setting in operation of a continuous PAI process unit for any purpose, the first time a new or reconstructed batch PAI process unit begins production, or, for new equipment added, including equipment used to comply with this subpart, the first time the equipment is put into operation. For batch process units, startup does not apply to the first time the equipment is put into operation at the start of a campaign to produce a product that has been produced in the past, after a shutdown for maintenance, or when the equipment is put into operation as part of a batch within a campaign. As used in § 63.1363, startup means the setting in operation of a piece of equipment or a control device that is subject to this subpart.

Storage vessel means a tank or other vessel that is used to store organic liquids that contain one or more HAP and that has been assigned, according to the procedures in § 63.1360(f) or (g), to a PAI process unit that is subject to this subpart MMM. The following are not considered storage vessels for the purposes of this subpart:

(1) Vessels permanently attached to motor vehicles such as trucks, railcars, barges, or ships;

(2) Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere;

(3) Vessels storing material that contains no organic HAP or contains organic HAP only as impurities;

(4) Wastewater storage tanks;

(5) Process tanks; and

(6) Nonwastewater waste tanks.

Supplemental gases means any nonaffected gaseous streams (streams

that are not from process vents, storage vessels, equipment or waste management units) that contain less than 20 ppmv TOC and less than 20 ppmv total HCl and chlorine, as determined through process knowledge, and are combined with an affected vent stream. Supplemental gases are often used to maintain pressures in manifolds or for fire and explosion protection and prevention. Air required to operate combustion device burner(s) is not considered a supplemental gas.

Surface impoundment means a waste management unit which is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials (although it may be lined with manmade materials), which is designed to hold an accumulation of liquid wastes or waste containing free liquids. A surface impoundment is used for the purpose of treating, storing, or disposing of wastewater or residuals, and is not an injection well. Examples of surface impoundments are equalization, settling, and aeration pits, ponds, and lagoons.

Total organic compounds (TOC) means those compounds measured according to the procedures of Method 18 or Method 25A, 40 CFR part 60, appendix A.

Treatment process means a specific technique that removes or destroys the organics in a wastewater or residual stream such as a steam stripping unit, thin-film evaporation unit, waste incinerator, biological treatment unit, or any other process applied to wastewater streams or residuals to comply with § 63.138 of subpart G of this part. Most treatment processes are conducted in tanks. Treatment processes are a subset of waste management units.

Uncontrolled HAP emissions means a gas stream containing HAP which has exited the process (or process condenser, if any), but which has not yet been introduced into an air pollution control device to reduce the mass of HAP in the stream. If the process vent is not routed to an air pollution control device, uncontrolled emissions are those HAP emissions released to the atmosphere.

Unit operation means those processing steps that occur within distinct equipment that are used, among other things, to prepare reactants, facilitate reactions, separate and purify products, and recycle materials. Equipment used for these purposes includes, but is not limited to, reactors, distillation units, extraction columns, absorbers, decanters, dryers, condensers, and filtration equipment.

Vapor-mounted seal means a continuous seal that completely covers the annular space between the wall of the storage tank or waste management unit and the edge of the floating roof, and is mounted such that there is a vapor space between the stored liquid and the bottom of the seal.

Volatile organic compounds are defined in 40 CFR 51.100.

Waste management unit means the equipment, structure(s), and/or device(s) used to convey, store, treat, or dispose of wastewater streams or residuals. Examples of waste management units include wastewater tanks, surface impoundments, individual drain systems, and biological wastewater treatment units. Examples of equipment that may be waste management units include containers, air flotation units, oil-water separators or organic-water separators, or organic removal devices such as decanters, strippers, or thin-film evaporation units. If such equipment is a recovery device, then it is part of a PAI process unit and is not a waste management unit.

Wastewater means water that meets either of the conditions described in paragraph (1) or (2) of this definition and is discarded from a PAI process unit that is at an affected source:

(1) Is generated from a PAI process and contains either:

(i) An annual average concentration of compounds in Table 9 of subpart G of this part of at least 5 ppmw and has an average flow rate of 0.02 L/min or greater; or

(ii) An annual average concentration of compounds in Table 9 of subpart G of this part of at least 10,000 ppmw at any flow rate;

(2) Is generated from a PAI process unit as a result of maintenance activities and contains at least 5.3 Mg of HAP per individual discharge event.

Wastewater tank means 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. Wastewater tanks used for flow equalization are included in this definition.

Water seal controls means a seal pot, p-leg trap, or other type of trap filled with water (e.g., flooded sewers that maintain water levels adequate to prevent air flow through the system) that creates a water barrier between the sewer line and the atmosphere. The water level of the seal must be maintained in the vertical leg of a drain in order to be considered a water seal.

§ 63.1362 Standards.

(a) On and after the compliance dates specified in § 63.1364, each owner or operator of an affected source subject to the provisions of this subpart shall control HAP emissions to the levels specified in this section and in § 63.1363, as summarized in Table 2 of this subpart.

(b) *Process vents.* (1) The owner or operator of an existing source shall comply with the requirements of paragraphs (b)(2) and (3) of this section. The owner or operator of a new source shall comply with the requirements of paragraphs (b)(4) and (5) of this section. Compliance with paragraphs (b)(2) through (b)(5) of this section shall be demonstrated through the applicable test methods and initial compliance procedures in § 63.1365 and the monitoring requirements in § 63.1366.

(2) *Organic HAP emissions from existing sources.* The owner or operator of an existing affected source must comply with the requirements in either paragraph (b)(2)(i) of this section or with the requirements in paragraphs (b)(2)(ii) through (iv) of this section.

(i) The uncontrolled organic HAP emission rate shall not exceed 0.15 Mg/yr from the sum of all process vents within a process.

(ii) (A) Except as provided in paragraph (b)(2)(ii)(B) of this section, uncontrolled organic HAP emissions from a process vent shall be reduced by 98 percent by weight or greater if the flow-weighted average flowrate for the vent as calculated using Equation 1 of this subpart is less than or equal to the flowrate calculated using Equation 2 of this subpart.

$$FR_a = \frac{\sum_{i=1}^{n}(D_i)(FR_i)}{\sum_{i=1}^{n} D_i} \qquad \text{(Eq. 1)}$$

$$FR = 0.02*(HL) - 1{,}000 \qquad \text{(Eq. 2)}$$

Where:

FR_a=flow-weighted average flowrate for the vent, scfm

D_i=duration of each emission event, min

FR_i=flowrate of each emission event, scfm

n=number of emission events

FR=flowrate, scfm

HL=annual uncontrolled organic HAP emissions, lb/yr, as defined in § 63.1361

(B) If the owner or operator can demonstrate that a control device, installed on or before November 10, 1997 on a process vent otherwise

subject to the requirements of paragraph (b)(2)(ii)(A) of this section, reduces inlet emissions of total organic HAP by greater than or equal to 90 percent by weight but less than 98 percent by weight, then the control device must be operated to reduce inlet emissions of total organic HAP by 90 percent by weight or greater.

(iii) Excluding process vents that are subject to the requirements in paragraph (b)(2)(ii) of this section, uncontrolled organic HAP emissions from the sum of all process vents within a process shall be reduced by 90 percent or greater by weight.

(iv) As an alternative to the requirements in paragraphs (b)(2)(ii) and (iii) of this section, uncontrolled organic HAP emissions from any process vent may be reduced in accordance with any of the provisions in paragraphs (b)(2)(iv)(A) through (D) of this section. All remaining process vents within a process must be controlled in accordance with paragraphs (b)(2)(ii) and (iii) of this section.

(A) To outlet concentrations less than or equal to 20 ppmv as TOC; or

(B) By a flare that meets the requirements of § 63.11(b); or

(C) By a control device specified in § 63.1365(a)(4); or

(D) In accordance with the alternative standard specified in paragraph (b)(6) of this section.

(3) *HCl and Cl_2 emissions from existing sources.* For each process, the owner or operator of an existing source shall comply with the requirements of either paragraph (b)(3)(i) or (ii) of this section.

(i) The uncontrolled HCl and Cl_2 emissions, including HCl generated from the combustion of halogenated process vent emissions, from the sum of all process vents within a process shall not exceed 6.8 Mg/yr.

(ii) HCl and Cl_2 emissions, including HCl generated from combustion of halogenated process vent emissions, from the sum of all process vents within a process shall be reduced by 94 percent or greater or to outlet concentrations less than or equal to 20 ppmv.

(4) *Organic HAP emissions from new sources.* For each process, the owner or operator of a new source shall comply with the requirements of either paragraph (b)(4)(i) or (ii) of this section.

(i) The uncontrolled organic HAP emissions shall not exceed 0.15 Mg/yr from the sum of all process vents within a process.

(ii) The uncontrolled organic HAP emissions from the sum of all process vents within a process at a new affected source that are not controlled according to any of the requirements of paragraphs (b)(4)(ii)(A) through (C) or (b)(6) of this section shall be reduced by 98 weight percent or greater.

(A) To outlet concentrations less than or equal to 20 ppmv as TOC; or

(B) By a flare that meets the requirements of § 63.11(b); or

(C) By a control device specified in § 63.1365(a)(4).

(5) *HCl and Cl_2 emissions from new sources.* For each process, the owner or operator of a new source shall comply with the requirements of either paragraph (b)(5)(i), (ii), or (iii) of this section.

(i) The uncontrolled HCl and Cl_2 emissions, including HCl generated from combustion of halogenated process vent emissions, from the sum of all process vents within a process shall not exceed 6.8 Mg/yr.

(ii) If HCl and Cl_2 emissions, including HCl generated from combustion of halogenated process vent emissions, from the sum of all process vents within a process are greater than or equal to 6.8 Mg/yr and less than 191 Mg/yr, these HCl and Cl_2 emissions shall be reduced by 94 percent or to an outlet concentration less than or equal to 20 ppmv.

(iii) If HCl and Cl_2 emissions, including HCl generated from combustion of halogenated process vent emissions, from the sum of all process vents within a process are greater than 191 Mg/yr, these HCl and Cl_2 emissions shall be reduced by 99 percent or greater or to an outlet concentration less than or equal to 20 ppmv.

(6) *Alternative standard.* As an alternative to the provisions in paragraphs (b) (2) through (5) of this section, the owner or operator may route emissions from a process vent to a control device or series of control devices achieving an outlet TOC concentration, as calibrated on methane or the predominant HAP, of 20 ppmv or less, and an outlet concentration of HCl and Cl_2 of 20 ppmv or less. Any process vents within a process that are not routed to such a control device or series of control devices must be controlled in accordance with the provisions of paragraphs (b)(2)(ii), (b)(2)(iii), (b)(2)(iv), (b)(3)(ii), (b)(3)(iii), (b)(4)(ii), (b)(5)(ii), or (b)(5)(iii) of this section, as applicable.

(c) *Storage vessels.* (1) The owner or operator shall either determine the group status of a storage vessel or designate it as a Group 1 storage vessel. If the owner or operator elects to designate the storage vessel as a Group 1 storage vessel, the owner or operator is not required to determine the maximum true vapor pressure of the material stored in the storage vessel.

(2) *Standard for existing sources.* Except as specified in paragraphs (c) (4) and (5) of this section, the owner or operator of a Group 1 storage vessel at an existing affected source, as defined in § 63.1361, shall equip the affected storage vessel with one of the following:

(i) A fixed roof and internal floating roof, or

(ii) An external floating roof, or

(iii) An external floating roof converted to an internal floating roof, or

(iv) A closed vent system meeting the conditions of paragraph (k) of this section and a control device that meets any of the following conditions:

(A) Reduces organic HAP emissions by 95 percent by weight or greater; or

(B) Reduces organic HAP emissions to outlet concentrations of 20 ppmv or less as TOC; or

(C) Is a flare that meets the requirements of § 63.11(b); or

(D) Is a control device specified in § 63.1365(a)(4).

(3) *Standard for new sources.* Except as specified in paragraphs (c)(4) and (5) of this section, the owner or operator of a Group 1 storage vessel at a new source, as defined in § 63.1361, shall equip the affected storage vessel in accordance with any one of paragraphs (c)(2)(i) through (iv) of this section.

(4) *Alternative standard.* As an alternative to the provisions in paragraphs (c)(2) and (3) of this section, the owner or operator of an existing or new affected source may route emissions from storage vessels to a control device or series of control devices achieving an outlet TOC concentration, as calibrated on methane or the predominant HAP, of 20 ppmv or less, and an outlet concentration of hydrogen chloride and chlorine of 20 ppmv or less.

(5) *Planned routine maintenance.* The owner or operator is exempt from the specifications in paragraphs (c)(2) through (4) of this section during periods of planned routine maintenance of the control device that do not exceed 240 hr/yr.

(6) Compliance with the provisions of paragraphs (c)(2) and (3) of this section is demonstrated using the initial compliance procedures in § 63.1365(d) and the monitoring requirements in § 63.1366. Compliance with the outlet concentrations in paragraph (c)(4) of this section shall be determined by the initial compliance provisions in § 63.1365(a)(5) and the continuous emission monitoring requirements of § 63.1366(b)(5).

(d) *Wastewater.* The owner or operator of each affected source shall comply with the requirements of §§ 63.131 through 63.147 of subpart G of

this part, with the differences noted in paragraphs (d)(1) through (13) of this section for the purposes of this subpart.

(1) When the determination of equivalence criteria in § 63.102(b) is referred to in §§ 63.132, 63.133, and 63.137 of subpart G of this part, the provisions in § 63.6(g) of subpart A of this part shall apply.

(2) When the storage tank requirements contained in §§ 63.119 through 63.123 of subpart G of this part are referred to in §§ 63.132 through 63.148 of subpart G of this part, §§ 63.119 through 63.123 of subpart G of this part are applicable, with the exception of the differences noted in paragraphs (d)(2)(i) through (v) of this section.

(i) When the term "storage vessel" is used in §§ 63.119 through 63.123 of subpart G of this part, the definition of the term "storage vessel" in § 63.1361 shall apply for the purposes of this subpart.

(ii) When December 31, 1992, is referred to in § 63.119 of subpart G of this part, November 10, 1997 shall apply for the purposes of this subpart.

(iii) When April 22, 1994 is referred to in § 63.119 of subpart G of this part, June 23, 1999 shall apply for the purposes of this subpart.

(iv) When the phrase "the compliance date specified in § 63.100 of subpart F of this part" is referred to in § 63.120 of subpart G of this part, the phrase "the compliance date specified in § 63.1364" shall apply for the purposes of this subpart.

(v) When the phrase "the maximum true vapor pressure of the total organic HAP in the stored liquid falls below the values defining Group 1 storage vessels specified in Table 5 or Table 6 of this subpart" is referred to in § 63.120(b)(1)(iv) of subpart G of this part, the phrase, "the maximum true vapor pressure of the total organic HAP in the stored liquid falls below the values defining Group 1 storage vessels specified in § 63.1361" shall apply for the purposes of this subpart.

(3) To request approval to monitor alternative parameters, as referred to in § 63.146(a) of subpart G of this part, the owner or operator shall comply with the procedures in § 63.8(f) of subpart A of this part, as referred to in § 63.1366(b)(4), instead of the procedures in § 63.151(f) or (g) of subpart G of this part.

(4) When the Notification of Compliance Status report requirements contained in § 63.152(b) of subpart G of this part are referred to in § 63.146 of subpart G of this part, the Notification of Compliance Status report requirements in § 63.1368(f) shall apply for the purposes of this subpart.

(5) When the recordkeeping requirements contained in § 63.152(f) of subpart G of this part are referred to in § 63.147(d) of subpart G of this part, the recordkeeping requirements in § 63.1367 shall apply for the purposes of this subpart.

(6) When the Periodic report requirements contained in § 63.152(c) of subpart G of this part are referred to in §§ 63.146 and 63.147 of subpart G of this part, the Periodic report requirements contained in § 63.1368(g) shall apply for the purposes of this subpart.

(7) When the term "process wastewater" is referred to in §§ 63.132 through 63.147 of subpart G of this part, the term "wastewater" as defined in § 63.1361 shall apply for the purposes of this subpart.

(8) When the term "Group 1 wastewater stream" is used in §§ 63.132 through 63.147 of subpart G of this part, the definition of the term "Group 1 wastewater stream" in § 63.1361 shall apply for both new sources and existing sources for the purposes of this subpart.

(9) The requirements in §§ 63.132 through 63.147 for compounds listed on Table 8 of subpart G of this part shall not apply for the purposes of this subpart.

(10) When the total load of Table 9 compounds in the sum of all process wastewater from PAI process units at a new affected source is 2,100 Mg/yr (2,300 tons/yr) or more, the owner or operator shall reduce, by removal or destruction, the mass flow rate of all compounds in Table 9 of subpart G of this part in all wastewater (process and maintenance wastewater) by 99 percent or more. Alternatively, the owner or operator may treat the wastewater in a unit identified in and complying with § 63.138(h) of subpart G of this part. The removal/destruction efficiency shall be determined by the procedures specified in § 63.145(c) of subpart G of this part, for noncombustion processes, or § 63.145(d) of subpart G of this part, for combustion processes.

(11) The compliance date for the affected source subject to the provisions of this section is specified in § 63.1364.

(12) The option in § 63.139 of subpart G of this part to reduce emissions from a control device to an outlet HAP concentration of 20 ppmv shall not apply for the purposes of this subpart.

(13) The requirement to correct outlet concentrations from combustion devices to 3 percent oxygen in § 63.139(c)(1)(ii) of subpart H of this part shall apply only if supplemental gases are combined with affected vent streams. If emissions are controlled with a vapor recovery system as specified in § 63.139(c)(2) of subpart H of this part, the owner or operator must correct for supplemental gases as specified in § 63.1365(a)(7)(ii).

(14) If wastewater is sent offsite for biological treatment, the waste management units up to the activated sludge unit must be covered, or the owner or operator must demonstrate that less than 5 percent of the total HAP on list 1 in § 63.145(h) of subpart H of this part is emitted from these units.

(e) *Bag dumps and product dryers.* (1) The owner or operator shall reduce particulate matter emissions to a concentration not to exceed 0.01 gr/dscf from product dryers that dry a PAI or integral intermediate that is a HAP.

(2) The owner or operator shall reduce particulate matter emissions to a concentration not to exceed 0.01 gr/dscf from bag dumps that introduce to a PAI process unit a feedstock that is a solid material and a HAP, excluding bag dumps where the feedstock contains HAP only as impurities.

(3) Gaseous HAP emissions from product dryers and bag dumps shall be controlled in accordance with the provisions for process vent emissions in paragraph (b) of this section.

(f) *Heat exchange systems.* Unless one or more of the conditions specified in § 63.104(a)(1) through (6) of subpart F of this part are met, an owner or operator shall monitor each heat exchange system that is used to cool process equipment in PAI process units that are part of an affected source as defined in § 63.1360(a) according to the provisions in either § 63.104(b) or (c) of subpart F of this part. When the term "chemical manufacturing process unit" is used in § 63.104(c) of subpart F of this part, the term "PAI process unit" shall apply for the purposes of this subpart. Whenever a leak is detected, the owner or operator shall comply with the requirements in § 63.104(d) of subpart F of this part. Delay of repair of heat exchange systems for which leaks have been detected is allowed in accordance with the provisions of § 63.104(e) of subpart F of this part.

(g) *Pollution prevention alternative.* Except as provided in paragraph (g)(1) of this section, for a process that has an initial startup before November 10, 1997, an owner or operator may choose to meet the pollution prevention alternative requirement specified in either paragraph (g)(2) or (3) of this section for any PAI process unit, in lieu of the requirements specified in paragraphs (b), (c), (d), and (e) of this section and in § 63.1363. Compliance with the requirements of paragraphs (g)(2) and (3) of this section shall be

demonstrated through the procedures in §§ 63.1365(g) and 63.1366(f).

(1) A HAP must be controlled according to the requirements of paragraphs (b), (c), (d), and (e) of this section and § 63.1363 if it is generated in the PAI process unit or an associated control device and it is not part of the production-indexed HAP consumption factor (HAP factor).

(2) The HAP factor shall be reduced by at least 85 percent from a 3-year average baseline beginning no earlier than the 1987 through 1989 calendar years. Alternatively, for a process that has been operating for less than 3 years but more than 1 year, the baseline factor may be calculated for the time period from startup of the process until the present. For any reduction in the HAP factor achieved by reducing a HAP that is also a VOC, an equivalent reduction in the production-indexed VOC consumption factor (VOC factor) is also required (the equivalence is determined on a mass basis, not a percentage basis). For any reduction in the HAP factor that is achieved by reducing a HAP that is not a VOC, the VOC factor may not be increased.

(3) As an alternative to the provisions in paragraph (g)(2) of this section, the owner or operator may combine pollution prevention with emissions control as specified in paragraphs (g)(3)(i) and (ii) of this section.

(i) The HAP factor shall be reduced as specified in paragraph (g)(2) of this section except that a reduction of at least 50 percent shall apply for the purposes of this paragraph.

(ii) The total annual HAP emissions from the PAI process unit shall be reduced by an amount that, when divided by the annual production rate and added to the reduction of the HAP factor yields a value of at least 85 percent of the baseline HAP factor. The total annual VOC emissions from the process unit must be reduced by an amount equivalent to the reduction in HAP emissions for each HAP that is a VOC (the equivalence is determined on a mass basis). For HAP emissions reductions that are achieved by reducing a HAP that is not a VOC, the total annual VOC emissions may not be increased. The reduction in HAP air emissions must be achieved using one of the following control devices:

(A) Combustion control devices such as incinerators, flares, or process heaters.

(B) Control devices such as condensers and carbon adsorbers whose recovered product is destroyed or shipped offsite for destruction.

(C) Any control device that does not ultimately allow for recycling of material back to the PAI process unit.

(D) Any control device for which the owner or operator can demonstrate that the use of the device in controlling HAP emissions will have no effect on the HAP factor for the PAI process unit.

(h) *Emissions averaging provisions.* Except as provided in paragraphs (h)(1) through (7) of this section, the owner or operator of an existing affected facility may choose to comply with the emission standards in paragraphs (b), (c), and (d) of this section by using emissions averaging procedures specified in § 63.1365(h) for organic HAP emissions from any storage vessel, process, or waste management unit that is part of an affected source subject to this subpart.

(1) A State may restrict the owner or operator of an existing source to use only the procedures in paragraphs (b), (c), and (d) of this section to comply with the emission standards where State authorities prohibit averaging of HAP emissions.

(2) Emission points that are controlled as specified in paragraphs (h)(2)(i) through (iii) may not be used to calculate emissions averaging credits, unless a nominal efficiency has been assigned according to the procedures in § 63.150(i) of subpart G of this part. The nominal efficiency must exceed the percent reduction required by paragraphs (b) and (c) of this section for process vents and storage vessels, respectively, and exceed the percent reduction required in § 63.138(e) or (f) of subpart G of this part for wastewater streams.

(i) Group 1 storage vessels controlled with an internal floating roof meeting the specifications of § 63.119(b) of subpart G of this part, an external floating roof meeting the specifications of § 63.119(c) of subpart G of this part, or an external floating roof converted to an internal floating meeting the specifications of § 63.119(d) of subpart G of this part.

(ii) Emission points controlled with a flare.

(iii) Wastewater controlled as specified in paragraphs (h)(2)(iii)(A) or (B) of this section.

(A) With controls specified in § 63.133 through § 63.137 of subpart G of this part;

(B) With a steam stripper meeting the specifications of § 63.138(d) of subpart G of this part.

(3) Process vents and storage vessels controlled with a control device to an outlet concentration of 20 ppmv and wastewater streams controlled in a treatment unit to an outlet concentration of 50 ppmw may not be used in any averaging group.

(4) Maintenance wastewater streams and wastewater streams treated in biological treatment units may not be included in any averaging group.

(5) Processes which have been permanently shut down and storage vessels permanently taken out of HAP service may not be included in any averaging group.

(6) Emission points already controlled on or before November 15, 1990 may not be used to generate emissions averaging credits, unless the level of control has been increased after November 15, 1990. In these cases, credit will be allowed only for the increase in control after November 15, 1990.

(7) Emission points controlled to comply with a State or Federal rule other than this subpart may not be included in an emissions averaging group, unless the level of control has been increased after November 15, 1990, above what is required by the other State or Federal rule. Only the control above what is required by the other State or Federal rule will be credited. However, if an emission point has been used to generate emissions averaging credit in an approved emissions average, and the point is subsequently made subject to a State or Federal rule other than this subpart, the point can continue to generate emissions averaging credit for the purpose of complying with the previously approved average.

(i) *Opening of a safety device.* Opening of a safety device, as defined in § 63.1361, is allowed at any time conditions require it to avoid unsafe conditions.

(j) *Closed-vent systems.* The owner or operator of a closed-vent system that contains bypass lines that could divert a vent stream away from a control device used to comply with the requirements in paragraphs (b) through (d) of this section shall comply with the requirements of Table 3 of this subpart and paragraph (j)(1) or (2) of this section. Equipment such as low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, rupture disks and pressure relief valves needed for safety purposes are not subject to this paragraph.

(1) Install, calibrate, maintain, and operate a flow indicator that determines whether vent stream flow is present at least once every 15 minutes. Records shall be maintained as specified in § 63.1367(f)(1). The flow indicator shall be installed at the entrance to any bypass line that could divert the vent stream away from the control device to the atmosphere; or

(2) Secure the bypass line valve in the closed position with a car seal or lock and key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and the vent stream is not diverted through the bypass line. Records shall be maintained as specified in § 63.1367(f)(2).

(k) *Control requirements for certain liquid streams in open systems within a PAI process unit.* (1) The owner or operator shall comply with the provisions of Table 4 of this subpart, for each item of equipment meeting all the criteria specified in paragraphs (k)(2) through (4) of this section and either paragraph (k)(5)(i) or (ii) of this section.

(2) The item of equipment is of a type identified in Table 4 of this subpart;

(3) The item of equipment is part of a PAI process unit as defined in § 63.1361;

(4) The item of equipment is controlled less stringently than in Table 4 of this subpart, and the item of equipment is not otherwise exempt from controls by the provisions of this subpart or subpart A of this part;

(5) The item of equipment:

(i) Is a drain, drain hub, manhole, lift station, trench, pipe, or oil/water separator that conveys water with a total annual average concentration greater than or equal to 10,000 ppm by weight of compounds in Table 9 of subpart G of this part at any flowrate; or a total annual average concentration greater than or equal to 1,000 ppm by weight of compounds in Table 9 of subpart G of this part at an annual average flow rate greater than or equal to 10 liters per minute; or

(ii) Is a tank that receives one or more streams that contain water with a total annual average concentration greater than or equal to 1,000 ppm by weight of compounds in Table 9 of subpart G of this part at an annual average flowrate greater than or equal to 10 liters per minute. The owner or operator of the source shall determine the characteristics of the stream as specified in paragraphs (k)(5)(ii)(A) and (B) of this section.

(A) The characteristics of the stream being received shall be determined at the inlet to the tank.

(B) The characteristics shall be determined according to the procedures in § 63.144(b) and (c) of subpart G of this part.

(l) *Exemption for RCRA treatment units.* An owner or operator shall be exempt from the initial compliance demonstrations and monitoring provisions in §§ 63.1365 and 63.1366 and the associated recordkeeping and reporting requirements in §§ 63.1367 and 63.1368 for emissions from process vents, storage vessels, and waste management units that are discharged to the following devices:

(1) A boiler or process heater burning hazardous waste for which the owner or operator:

(i) Has been issued a final permit under 40 CFR part 270 and complies with the requirements of 40 CFR part 266, subpart H; or

(ii) Has certified compliance with the interim status requirements of 40 CFR part 266, subpart H.

(2) A hazardous waste incinerator for which the owner or operator has been issued a final permit under 40 CFR part 270 and complies with the requirements of 40 CFR part 264, subpart O, or has certified compliance with the interim status requirements of 40 CFR part 265, subpart O.

§ 63.1363 Standards for equipment leaks.

(a) *General equipment leak requirements.* (1) The provisions of this section apply to "equipment" as defined in § 63.1361 and any closed-vent systems and control devices required by this subpart.

(2) *Consistency with other regulations.* After the compliance date for a process, equipment subject to both this section and either of the following will be required to comply only with the provisions of this subpart:

(i) 40 CFR part 60.

(ii) 40 CFR part 61.

(3) [Reserved].

(4) The provisions in § 63.1(a)(3) of subpart A of this part do not alter the provisions in paragraph (a)(2) of this section.

(5) Lines and equipment not containing process fluids are not subject to the provisions of this section. Utilities, and other nonprocess lines, such as heating and cooling systems which do not combine their materials with those in the processes they serve, are not considered to be part of a process.

(6) The provisions of this section do not apply to bench-scale processes, regardless of whether the processes are located at the same plant site as a process subject to the provisions of this subpart MMM.

(7) Each piece of equipment to which this section applies shall be identified such that it can be distinguished readily from equipment that is not subject to this section. Identification of the equipment does not require physical tagging of the equipment. For example, the equipment may be identified on a plant site plan, in log entries, or by designation of process boundaries by some form of weatherproof identification. If changes are made to the affected source subject to the leak detection requirements, equipment identification for each type of component shall be updated, if needed, within 15 calendar days of the end of each monitoring period for that component.

(8) Equipment that is in vacuum service is excluded from the requirements of this section.

(9) Equipment that is in organic HAP service, but is in such service less than 300 hours per calendar year, is excluded from the requirements of this section if it is identified as required in paragraph (g)(9) of this section.

(10) When each leak is detected by visual, audible, or olfactory means, or by monitoring as described in § 63.180(b) or (c) of subpart H of this part, the following requirements apply:

(i) A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.

(ii) The identification on a valve or connector in light liquid or gas/vapor service may be removed after it has been monitored as specified in paragraph (e)(7)(iii) of this section and § 63.174(e) of subpart H of this part, and no leak has been detected during the follow-up monitoring.

(iii) The identification on equipment, except on a valve or connector in light liquid or gas/vapor service, may be removed after it has been repaired.

(b) *References.* The owner or operator shall comply with the provisions of subpart H of this part as specified in paragraphs (b)(1) through (3) of this section. When the term "process unit" is used in subpart H of this part, it shall mean any group of processes for the purposes of this subpart. Groups of processes as used in this subpart may be any individual process or combination of processes.

(1) Sections 63.160, 63.161, 63.162, 63.163, 63.167, 63.168, 63.170, 63.173, 63.175, 63.176, 63.181, and 63.182 of subpart H of this part shall not apply for the purposes of this subpart MMM. The owner or operator shall comply with the provisions specified in paragraphs (b)(1)(i) through (viii) of this section.

(i) Sections 63.160 and 63.162 of subpart H of this part shall not apply, instead the owner or operator shall comply with paragraph (a) of this section;

(ii) Section 63.161 of subpart H of this part shall not apply, instead the owner or operator shall comply with § 63.1361;

(iii) Sections 63.163 and 63.173 of subpart H of this part shall not apply,

instead the owner or operator shall comply with paragraph (c) of this section;

(iv) Section 63.167 of subpart H of this part shall not apply, instead the owner or operator shall comply with paragraph (d) of this section;

(v) Section 63.168 of subpart H of this part shall not apply, instead the owner or operator shall comply with paragraph (e) of this section;

(vi) Section 63.170 of subpart H of this part shall not apply, instead the owner or operator shall comply with § 63.1362(b);

(vii) Section 63.181 of subpart H of this part shall not apply, instead the owner or operator shall comply with paragraph (g) of this section; and

(viii) Section 63.182 of subpart H of this part shall not apply, instead the owner or operator shall comply with paragraph (h) of this section.

(2) The owner or operator shall comply with §§ 63.164, 63.165, 63.166, 63.169, 63.177, and 63.179 of subpart H of this part in their entirety, except that when these sections reference other sections of subpart H of this part, the owner or operator shall comply with the revised sections as specified in paragraphs (b)(1) and (3) of this section. Section 63.164 of subpart H of this part applies to compressors. Section 63.165 of subpart H of this part applies to pressure relief devices in gas/vapor service. Section 63.166 of subpart H of this part applies to sampling connection systems. Section 63.169 of subpart H of this part applies to: pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service. Section 63.177 of subpart H of this subpart applies to general alternative means of emission limitation. Section 63.179 of subpart H of this part applies to alternative means of emission limitation for enclosed-vented process units.

(3) The owner or operator shall comply with §§ 63.171, 63.172, 63.174, 63.178, and 63.180 of subpart H of this part with the differences specified in paragraphs (b)(3)(i) through (v) of this section.

(i) Section 63.171, Delay of repair, shall apply except § 63.171(a) shall not apply. Delay of repair of equipment for which leaks have been detected is allowed if one of the following conditions exist:

(A) The repair is technically infeasible without a process shutdown. Repair of this equipment shall occur by the end of the next scheduled process shutdown.

(B) The owner or operator determines that repair personnel would be exposed to an immediate danger if attempting to repair without a process shutdown. Repair of this equipment shall occur by the end of the next scheduled process shutdown.

(ii) Section 63.172, Closed-vent systems and control devices, shall apply for closed-vent systems used to comply with this section, and for control devices used to comply with this section only, except:

(A) Section 63.172(k) and (l) shall not apply. The owner or operator shall instead comply with paragraph (f) of this section.

(B) Owners or operators may, instead of complying with the provisions of § 63.172(f), design a closed-vent system to operate at a pressure below atmospheric pressure. The system shall be equipped with at least one pressure gauge or other pressure measurement device that can be read from a readily accessible location to verify that negative pressure is being maintained in the closed-vent system when the associated control device is operating.

(iii) Section 63.174, Connectors, shall apply except:

(A) Section 63.174(f) and (g) shall not apply. Instead of § 63.174(f) and (g), the owner or operator shall comply with paragraph (f) of this section.

(B) Days that the connectors are not in organic HAP service shall not be considered part of the 3-month period in § 63.174(e).

(C) Section 63.174(b)(3)(ii) of subpart H of this part shall not apply. Instead, if the percent leaking connectors in the group of process units was less than 0.5 percent, but equal to or greater than 0.25 percent, during the last required monitoring period, monitoring shall be performed once every 4 years. An owner or operator may comply with the requirements of this paragraph by monitoring at least 40 percent of the connectors in the first 2 years and the remainder of the connectors within the next 2 years. The percent leaking connectors will be calculated for the total of all monitoring performed during the 4-year period.

(D) Section 63.174(b)(3)(iv) of subpart H of this part shall not apply. Instead, the owner or operator shall increase the monitoring frequency to once every 2 years for the next monitoring period if leaking connectors comprise at least 0.5 percent but less than 1.0 percent of the connectors monitored within the 4 years specified in paragraph (b)(3)(iii)(C) of this section, or the first 4 years specified in § 63.174(b)(3)(iii) of subpart H of this part. At the end of that 2-year monitoring period, the owner or operator shall monitor once per year while the percent leaking connectors is greater than or equal to 0.5 percent; if the percent leaking connectors is less than 0.5 percent, the owner or operator may return to monitoring once every 4 years or may monitor in accordance with § 63.174(b)(3)(iii) of subpart H of this part, if appropriate.

(E) Section 63.174(b)(3)(v) of subpart H of this part shall not apply. Instead, if an owner or operator complying with the requirements of paragraph (b)(3)(iii)(C) and (D) of this section or § 63.174(b)(3)(iii) of subpart H of this part for a group of process units determines that 1 percent or greater of the connectors are leaking, the owner or operator shall increase the monitoring frequency to one time per year. The owner or operator may again elect to use the provisions of paragraphs (b)(3)(iii)(C) or (D) of this section after a monitoring period in which less than 0.5 percent of the connectors are determined to be leaking.

(F) Section 63.174(b)(3)(iii) of subpart H of this part shall not apply. Instead, monitoring shall be required once every 8 years, if the percent leaking connectors in the group of process units was less than 0.25 percent during the last required monitoring period. An owner or operator shall monitor at least 50 percent of the connectors in the first 4 years and the remainder of the connectors within the next 4 years. If the percent leaking connectors in the first 4 years is equal to or greater than 0.35 percent, the monitoring program shall revert at that time to the appropriate monitoring frequency specified in paragraphs (b)(3)(iii)(C), (D), or (E) of this section.

(iv) Section 63.178 of subpart H of this part, Alternative means of emission limitation: Batch processes, shall apply except that § 63.178(b) of subpart H of this part, requirements for pressure testing, shall apply to all processes, not just batch processes;

(v) Section 63.180 of subpart H of this part, Test methods and procedures, shall apply except § 63.180(b)(4)(ii)(A) through (C) of subpart H of this part shall not apply. Calibration gases shall be a mixture of methane and air at a concentration of approximately, but less than, 10,000 parts per million methane for agitators, 2,000 parts per million for pumps, and 500 parts per million for all other equipment, except as provided in § 63.180(b)(4)(iii) of subpart H of this part.

(c) *standards for pumps in light liquid service and agitators in gas/vapor service and in light liquid service.* (1) The provisions of this section apply to each pump that is in light liquid service, and to each agitator in gas/vapor service or in light liquid service.

(2)(i) *Monitoring.* Each pump and agitator subject to this section shall be monitored quarterly to detect leaks by the method specified in § 63.180(b) of subpart H of this part, except as provided in § 63.177 of subpart H of this part, paragraph (f) of this section, and paragraphs (c)(5) through (c)(9) of this section.

(ii) *Leak definition.* The instrument reading, as determined by the method as specified in § 63.180(b) of subpart H of this part, that defines a leak is:

(A) For agitators, an instrument reading of 10,000 parts per million or greater.

(B) For pumps, an instrument reading of 2,000 parts per million or greater.

(iii) *Visual inspections.* Each pump and agitator shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump or agitator seal. If there are indications of liquids dripping from the seal, a leak is detected.

(3) *Repair provisions.* (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in paragraph (b)(3)(i) of this section.

(ii) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected. First attempts at repair include, but are not limited to, the following practices where practicable:

(A) Tightening of packing gland nuts.

(B) Ensuring that the seal flush is operating at design pressure and temperature.

(4) *Calculation of percent leakers.* (i) The owner or operator shall decide no later than the end of the first monitoring period what groups of processes will be developed. Once the owner or operator has decided, all subsequent percent calculations shall be made on the same basis.

(ii) If, calculated on a 1 year rolling average, the greater of either 10 percent or three of the pumps in a group of processes leak, the owner or operator shall monitor each pump once per month.

(iii) The number of pumps in a group of processes shall be the sum of all the pumps in organic HAP service, except that pumps found leaking in a continuous process within 1 quarter after startup of the pump shall not count in the percent leaking pumps calculation for that one monitoring period only.

(iv) Percent leaking pumps shall be determined using Equation 3 of this subpart:

$$\%P_L = \left[(P_L - P_S)/(P_T - P_S)\right] \times 100 \qquad \text{(Eq. 3)}$$

where:

$\%P_L$ = percent leaking pumps

P_L = number of pumps found leaking as determined through quarterly monitoring as required in paragraphs (c)(2)(i) and (ii) of this section.

P_T = total pumps in organic HAP service, including those meeting the criteria in paragraphs (c)(5) and (6) of this section

P_S = number of pumps in a continuous process leaking within 1 quarter of startup during the current monitoring period

(5) *Exemptions.* Each pump or agitator equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraphs (c)(1) through (c)(4)(iii) of this section, provided the following requirements are met:

(i) Each dual mechanical seal system is:

(A) Operated with the barrier fluid at a pressure that is at all times greater than the pump/agitator stuffing box pressure; or

(B) Equipped with a barrier fluid degassing reservoir that is connected by a closed-vent system to a control device that complies with the requirements of paragraph (b)(3)(ii) of this section; or

(C) Equipped with a closed-loop system that purges the barrier fluid into a process stream.

(ii) The barrier fluid is not in light liquid service.

(iii) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(iv) Each pump/agitator is checked by visual inspection each calendar week for indications of liquids dripping from the pump/agitator seal.

(A) If there are indications of liquids dripping from the pump/agitator seal at the time of the weekly inspection, the pump/agitator shall be monitored as specified in § 63.180(b) of subpart H of this part to determine if there is a leak of organic HAP in the barrier fluid.

(B) If an instrument reading of 2,000 parts per million or greater is measured for pumps, or 10,000 parts per million or greater is measured for agitators, a leak is detected.

(v) Each sensor as described in paragraph (c)(5)(iii) of this section is observed daily or is equipped with an alarm unless the pump is located within the boundary of an unmanned plant site.

(vi)(A) The owner or operator determines, based on design considerations and operating experience, criteria applicable to the presence and frequency of drips and to the sensor that indicate failure of the seal system, the barrier fluid system, or both.

(B) If indications of liquids dripping from the pump/agitator seal exceed the criteria established in paragraph (c)(5)(vi)(A) of this section, or if, based on the criteria established in paragraph (c)(5)(vi)(A) of this section, the sensor indicates failure of the seal system, the barrier fluid system, or both, a leak is detected.

(C) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in paragraph (b)(3)(i) of this section.

(D) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(6) Any pump/agitator that is designed with no externally actuated shaft penetrating the pump/agitator housing is exempt from the requirements of paragraphs (c)(1) through (4) of this section, except for the requirements of paragraph (c)(2)(iii) of this section and, for pumps, paragraph (c)(4)(iv) of this section.

(7) Any pump/agitator equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals back to the process or to a control device that complies with the requirements of paragraph (b)(3)(ii) of this section is exempt from the requirements of paragraphs (c)(2) through (5) of this section.

(8) Any pump/agitator that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (c)(2)(iii) and (c)(5)(iv) of this section, and the daily requirements of paragraph (c)(5)(v) of this section, provided that each pump/agitator is visually inspected as often as practicable and at least monthly.

(9) If more than 90 percent of the pumps in a group of processes meet the criteria in either paragraph (c)(5) or (6) of this section, the process is exempt

from the requirements of paragraph (c)(4) of this section.

(d) *Standards: open-ended valves or lines.* (1)(i) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in § 63.177 of subpart H of this part and paragraphs (d)(4) through (6) of this section.

(ii) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line, or during maintenance or repair. The cap, blind flange, plug, or second valve shall be in place within 1 hour of cessation of operations requiring process fluid flow through the open-ended valve or line, or within 1 hour of cessation of maintenance or repair.

(2) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(3) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (d)(1) of this section at all other times.

(4) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of paragraphs (d)(1) through (3) of this section.

(5) Open-ended valves or lines containing materials which would autocatalytically polymerize are exempt from the requirements of paragraphs (d)(1) through (3) of this section.

(6) Open-ended valves or lines containing materials which could cause an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraphs (d)(1) through (3) of this section are exempt from the requirements of paragraphs (d)(1) through (3) of this section.

(e) *Standards: valves in gas/vapor service and in light liquid service.* (1) The provisions of this section apply to valves that are either in gas/vapor service or in light liquid service.

(2) For existing and new affected sources, all valves subject to this section shall be monitored, except as provided in paragraph (f) of this section and in § 63.177 of subpart H of this part, by no later than 1 year after the compliance date.

(3) *Monitoring.* The owner or operator of a source subject to this section shall monitor all valves, except as provided in paragraph (f) of this section and in § 63.177 of subpart H of this part, at the intervals specified in paragraph (e)(4) of this section and shall comply with all other provisions of this section, except as provided in paragraph (b)(3)(i) of this section and §§ 63.178 and 63.179 of subpart H of this part.

(i) The valves shall be monitored to detect leaks by the method specified in § 63.180(b) of subpart H of this part.

(ii) An instrument reading of 500 parts per million or greater defines a leak.

(4) *Subsequent monitoring frequencies.* After conducting the initial survey required in paragraph (e)(2) of this section, the owner or operator shall monitor valves for leaks at the intervals specified below:

(i) For a group of processes with 2 percent or greater leaking valves, calculated according to paragraph (e)(6) of this section, the owner or operator shall monitor each valve once per month, except as specified in paragraph (e)(9) of this section.

(ii) For a group of processes with less than 2 percent leaking valves, the owner or operator shall monitor each valve once each quarter, except as provided in paragraphs (e)(4)(iii) through (v) of this section.

(iii) For a group of processes with less than 1 percent leaking valves, the owner or operator may elect to monitor each valve once every 2 quarters.

(iv) For a group of processes with less than 0.5 percent leaking valves, the owner or operator may elect to monitor each valve once every 4 quarters.

(v) For a group of processes with less than 0.25 percent leaking valves, the owner or operator may elect to monitor each valve once every 2 years.

(5) *Calculation of percent leakers.* For a group of processes to which this subpart applies, the owner or operator may choose to subdivide the valves in the applicable group of processes and apply the provisions of paragraph (e)(4) of this section to each subgroup. If the owner or operator elects to subdivide the valves in the applicable group of processes, then the provisions of paragraphs (e)(5)(i) through (viii) of this section apply.

(i) The overall performance of total valves in the applicable group of processes must be less than 2 percent leaking valves, as detected according to paragraphs (e)(3)(i) and (ii) of this section and as calculated according to paragraphs (e)(6)(ii) and (iii) of this section.

(ii) The initial assignment or subsequent reassignment of valves to subgroups shall be governed by the provisions of paragraphs (e)(5)(ii) (A) through (C) of this section.

(A) The owner or operator shall determine which valves are assigned to each subgroup. Valves with less than 1 year of monitoring data or valves not monitored within the last 12 months must be placed initially into the most frequently monitored subgroup until at least 1 year of monitoring data have been obtained.

(B) Any valve or group of valves can be reassigned from a less frequently monitored subgroup to a more frequently monitored subgroup provided that the valves to be reassigned were monitored during the most recent monitoring period for the less frequently monitored subgroup. The monitoring results must be included with the less frequently monitored subgroup's monitoring event and associated next percent leaking valves calculation for that group.

(C) Any valve or group of valves can be reassigned from a more frequently monitored subgroup to a less frequently monitored subgroup provided that the valves to be reassigned have not leaked for the period of the less frequently monitored subgroup (e.g., for the last 12 months, if the valve or group of valves is to be reassigned to a subgroup being monitored annually). Nonrepairable valves may not be reassigned to a less frequently monitored subgroup.

(iii) The owner or operator shall determine every 6 months if the overall performance of total valves in the applicable group of processes is less than 2 percent leaking valves and so indicate the performance in the next Periodic report. If the overall performance of total valves in the applicable group of processes is 2 percent leaking valves or greater, the owner or operator shall revert to the program required in paragraphs (e)(2) through (4) of this section. The overall performance of total valves in the applicable group of processes shall be calculated as a weighted average of the percent leaking valves of each subgroup according to Equation 4 of this subpart:

$$\%V_{LO} = \frac{\sum_{i=1}^{n}\left(\%V_{Li} \times V_i\right)}{\sum_{i=1}^{n} V_i} \qquad \text{(Eq. 4)}$$

where:

$\%V_{LO}$ = overall performance of total valves in the applicable group of processes

$\%V_{Li}$ = percent leaking valves in subgroup i, most recent value calculated according to the procedures in paragraphs (e)(6)(ii) and (iii) of this section

V_i = number of valves in subgroup i

n = number of subgroups

(iv) *Records.* In addition to records required by paragraph (g) of this section, the owner or operator shall maintain records specified in paragraphs (e)(5)(iv)(A) through (D) of this section.

(A) Which valves are assigned to each subgroup,

(B) Monitoring results and calculations made for each subgroup for each monitoring period,

(C) Which valves are reassigned and when they were reassigned, and

(D) The results of the semiannual overall performance calculation required in paragraph (e)(5)(iii) of this section.

(v) The owner or operator shall notify the Administrator no later than 30 days prior to the beginning of the next monitoring period of the decision to subgroup valves. The notification shall identify the participating processes and the valves assigned to each subgroup.

(vi) *Semiannual reports.* In addition to the information required by paragraph (h)(3) of this section, the owner or operator shall submit in the Periodic reports the information specified in paragraphs (e)(5)(vi)(A) and (B) of this section.

(A) Valve reassignments occurring during the reporting period, and

(B) Results of the semiannual overall performance calculation required by paragraph (e)(5)(iii) of this section.

(vii) To determine the monitoring frequency for each subgroup, the calculation procedures of paragraph (e)(6)(iii) of this section shall be used.

(viii) Except for the overall performance calculations required by paragraphs (e)(5)(i) and (iii) of this section, each subgroup shall be treated as if it were a process for the purposes of applying the provisions of this section.

(6)(i) The owner or operator shall decide no later than the implementation date of this subpart or upon revision of an operating permit how to group the processes. Once the owner or operator has decided, all subsequent percentage calculations shall be made on the same basis.

(ii) Percent leaking valves for each group of processes or subgroup shall be determined using Equation 5 of this subpart:

$$\%V_L = [V_L/V_T] \times 100 \qquad \text{(Eq. 5)}$$

Where:

$\%V_L$ = percent leaking valves

V_L = number of valves found leaking excluding nonrepairables as provided in paragraph (e)(6)(iv)(A) of this section

V_T = total valves monitored, in a monitoring period excluding valves monitored as required by paragraph (e)(7)(iii) of this section

(iii) When determining monitoring frequency for each group of processes or subgroup subject to monthly, quarterly, or semiannual monitoring frequencies, the percent leaking valves shall be the arithmetic average of the percent leaking valves from the last two monitoring periods. When determining monitoring frequency for each group of processes or subgroup subject to annual or biennial (once every 2 years) monitoring frequencies, the percent leaking valves shall be the arithmetic average of the percent leaking valves from the last three monitoring periods.

(iv)(A) Nonrepairable valves shall be included in the calculation of percent leaking valves the first time the valve is identified as leaking and nonrepairable and as required to comply with paragraph (e)(6)(iv)(B) of this section. Otherwise, a number of nonrepairable valves (identified and included in the percent leaking calculation in a previous period) up to a maximum of 1 percent of the total number of valves in organic HAP service at a process may be excluded from calculation of percent leaking valves for subsequent monitoring periods.

(B) If the number of nonrepairable valves exceeds 1 percent of the total number of valves in organic HAP service at a process, the number of nonrepairable valves exceeding 1 percent of the total number of valves in organic HAP service shall be included in the calculation of percent leaking valves.

(7) *Repair provisions.* (i) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in paragraph (b)(3)(i) of this section.

(ii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(iii) When a leak is repaired, the valve shall be monitored at least once within the first 3 months after its repair. Days that the valve is not in organic HAP service shall not be considered part of this 3-month period.

(8) First attempts at repair include, but are not limited to, the following practices where practicable:

(i) Tightening of bonnet bolts,

(ii) Replacement of bonnet bolts,

(iii) Tightening of packing gland nuts, and

(iv) Injection of lubricant into lubricated packing.

(9) Any equipment located at a plant site with fewer than 250 valves in organic HAP service in the affected source is exempt from the requirements for monthly monitoring specified in paragraph (e)(4)(i) of this section. Instead, the owner or operator shall monitor each valve in organic HAP service for leaks once each quarter, or comply with paragraphs (e)(4)(iii) or (iv) of this section.

(f) *Unsafe to monitor, difficult to monitor, and inaccessible equipment.* (1) Equipment that is designated as unsafe to monitor, difficult to monitor, or inaccessible is exempt from the requirements as specified in paragraphs (f)(1)(i) through (iv) of this section provided the owner or operator meets the requirements specified in paragraph (f)(2), (3), or (4) of this section, as applicable. Ceramic or ceramic-lined connectors are subject to the same requirements as inaccessible connectors.

(i) For pumps and agitators, paragraphs (c)(2), (3), and (4) of this section do not apply.

(ii) For valves, paragraphs (e)(2) through (7) of this section do not apply.

(iii) For closed-vent systems, § 63.172(f)(1), (f)(2), and (g) of subpart H of this part do not apply.

(iv) For connectors, § 63.174(b) through (e) of subpart H of this part do not apply.

(2) *Equipment that is unsafe to monitor.* (i) Equipment may be designated as unsafe to monitor if the owner or operator determines that monitoring personnel would be exposed to an immediate danger as a consequence of complying with the monitoring requirements identified in paragraphs (f)(1)(i) through (iv) of this section.

(ii) The owner or operator of equipment that is designated as unsafe-to-monitor must have a written plan that requires monitoring of the equipment as frequently as practicable during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.

(3) *Equipment that is difficult to monitor.* (i) Equipment may be designated as difficult to monitor if the owner or operator determines that the equipment cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface or the equipment is not accessible at anytime in a safe manner;

(ii) At an existing source, any equipment within a group of processes that meets the criteria of paragraph (f)(3)(i) of this section may be designated as difficult to monitor. At a new affected source, an owner or operator may designate no more than 3 percent of each type of equipment as difficult to monitor.

(iii) The owner or operator of equipment designated as difficult to monitor must follow a written plan that requires monitoring of the equipment at least once per calendar year.

(4) *Inaccessible equipment and ceramic or ceramic-lined connectors.* (i) A connector, agitator, or valve may be designated as inaccessible if it is:

(A) Buried;

(B) Insulated in a manner that prevents access to the equipment by a monitor probe;

(C) Obstructed by equipment or piping that prevents access to the equipment by a monitor probe;

(D) Unable to be reached from a wheeled scissor-lift or hydraulic-type scaffold which would allow access to equipment up to 7.6 meters above the ground; or

(E) Not able to be accessed at any time in a safe manner to perform monitoring. Unsafe access includes, but is not limited to, the use of a wheeled scissor-lift on unstable or uneven terrain, the use of a motorized man-lift basket in areas where an ignition potential exists, or access would require near proximity to hazards such as electrical lines, or would risk damage to equipment.

(ii) At an existing source, any connector, agitator, or valve that meets the criteria of paragraph (f)(4)(i) of this section may be designated as inaccessible. At a new affected source, an owner or operator may designate no more than 3 percent of each type of equipment as inaccessible.

(iii) If any inaccessible equipment or ceramic or ceramic-lined connector is observed by visual, audible, olfactory, or other means to be leaking, the leak shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in paragraph (b)(3)(i) of this section.

(g) *Recordkeeping requirements.* (1) An owner or operator of more than one group of processes subject to the provisions of this section may comply with the recordkeeping requirements for the groups of processes in one recordkeeping system if the system identifies with each record the program being implemented (e.g., quarterly monitoring) for each type of equipment. All records and information required by this section shall be maintained in a manner that can be readily accessed at the plant site. This could include physically locating the records at the plant site or accessing the records from a central location by computer at the plant site.

(2) *General recordkeeping.* Except as provided in paragraph (g)(5) of this section, the following information pertaining to all equipment subject to the requirements in this section shall be recorded:

(i)(A) A list of identification numbers for equipment (except instrumentation systems) subject to the requirements of this section. Connectors, except those subject to paragraph (f) of this section, need not be individually identified if all connectors in a designated area or length of pipe subject to the provisions of this section are identified as a group, and the number of subject connectors is indicated. The list for each type of equipment shall be completed no later than the completion of the initial survey required for that component. The list of identification numbers shall be updated, if needed, to incorporate equipment changes within 15 calendar days of the completion of each monitoring survey for the type of equipment component monitored.

(B) A schedule for monitoring connectors subject to the provisions of § 63.174(a) of subpart H of this part and valves subject to the provisions of paragraph (e)(4) of this section.

(C) Physical tagging of the equipment is not required to indicate that it is in organic HAP service. Equipment subject to the provisions of this section may be identified on a plant site plan, in log entries, or by other appropriate methods.

(ii)(A) A list of identification numbers for equipment that the owner or operator elects to equip with a closed-vent system and control device, under the provisions of paragraph (c)(7) of this section or §§ 63.164(h) or 63.165(c) of subpart H of this part.

(B) A list of identification numbers for compressors that the owner or operator elects to designate as operating with an instrument reading of less than 500 parts per million above background, under the provisions of § 63.164(i) of subpart H of this part.

(iii)(A) A list of identification numbers for pressure relief devices subject to the provisions in § 63.165(a) of subpart H of this part.

(B) A list of identification numbers for pressure relief devices equipped with rupture disks, under the provisions of § 63.165(d) of subpart H of this part.

(iv) Identification of instrumentation systems subject to the provisions of this section. Individual components in an instrumentation system need not be identified.

(v) The following information shall be recorded for each dual mechanical seal system:

(A) Design criteria required by paragraph (c)(5)(vi)(A) of this section and § 63.164(e)(2) of subpart H of this part, and an explanation of the design criteria; and

(B) Any changes to these criteria and the reasons for the changes.

(vi) A list of equipment designated as unsafe to monitor, difficult to monitor, or inaccessible under paragraphs (f) or (b)(3)(i)(B) of this section and a copy of the plan for monitoring or inspecting this equipment.

(vii) A list of connectors removed from and added to the process, as described in § 63.174(i)(1) of subpart H of this part, and documentation of the integrity of the weld for any removed connectors, as required in § 63.174(j) of subpart H of this part. This is not required unless the net credits for removed connectors is expected to be used.

(viii) For batch processes that the owner or operator elects to monitor as provided under § 63.178(c) of subpart H of this part, a list of equipment added to batch product processes since the last monitoring period required in § 63.178(c)(3)(ii) and (iii) of subpart H of this part. This list must be completed for each type of equipment within 15 calendar days of the completion of the each monitoring survey for the type of equipment monitored.

(3) *Records of visual inspections.* For visual inspections of equipment subject to the provisions of paragraphs (c)(2)(iii) and (c)(5)(iv) of this section, the owner or operator shall document that the inspection was conducted and the date of the inspection. The owner or operator shall maintain records as specified in paragraph (g)(4) of this section for leaking equipment identified in this inspection, except as provided in paragraph (g)(5) of this section. These records shall be retained for 5 years.

(4) *Monitoring records.* When each leak is detected as specified in paragraphs (c) and (e) of this section and §§ 63.164, 63.169, 63.172, and 63.174 of subpart H of this part, the owner or operator shall record the information specified in paragraphs (g)(4)(i) through (ix) of this section. All records shall be retained for 5 years, in accordance with the requirements of § 63.10(b)(1) of subpart A of this part.

(i) The instrument and the equipment identification number and the operator name, initials, or identification number.

(ii) The date the leak was detected and the date of first attempt to repair the leak.

(iii) The date of successful repair of the leak.

(iv) If postrepair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after it is successfully repaired or determined to be nonrepairable.

(v) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

(A) The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup/shutdown/malfunction plan, required by §63.1367(a), for the source or may be part of a separate document that is maintained at the plant site. Reasons for delay of repair may be documented by citing the relevant sections of the written procedure.

(B) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked onsite before depletion and the reason for depletion.

(vi) If repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired.

(vii)(A) If the alternative in §63.174(c)(1)(ii) of subpart H of this part is not in use for the monitoring period, identification, either by list, location (area or grouping), or tagging of connectors disturbed since the last monitoring period required in §63.174(b) of subpart H of this part, as described in §63.174(c)(1) of subpart H of this part.

(B) The date and results of follow-up monitoring as required in §63.174(c) of subpart H of this part. If identification of disturbed connectors is made by location, then all connectors within the designated location shall be monitored.

(viii) The date and results of the monitoring required in §63.178(c)(3)(i) of subpart H of this part for equipment added to a batch process since the last monitoring period required in §63.178(c)(3)(ii) and (iii) of subpart H of this part. If no leaking equipment is found in this monitoring, the owner or operator shall record that the inspection was performed. Records of the actual monitoring results are not required.

(ix) Copies of the periodic reports as specified in paragraph (h)(3) of this section, if records are not maintained on a computerized data base capable of generating summary reports from the records.

(5) *Records of pressure tests.* The owner or operator who elects to pressure test a process equipment train and supply lines between storage and processing areas to demonstrate compliance with this section is exempt from the requirements of paragraphs (g)(2), (3), (4), and (6) of this section. Instead, the owner or operator shall maintain records of the following information:

(i) The identification of each product, or product code, produced during the calendar year. It is not necessary to identify individual items of equipment in the process equipment train.

(ii) Records demonstrating the proportion of the time during the calendar year the equipment is in use in the process that is subject to the provisions of this subpart. Examples of suitable documentation are records of time in use for individual pieces of equipment or average time in use for the process unit. These records are not required if the owner or operator does not adjust monitoring frequency by the time in use, as provided in §63.178(c)(3)(iii) of subpart H of this part.

(iii) Physical tagging of the equipment to identify that it is in organic HAP service and subject to the provisions of this section is not required. Equipment in a process subject to the provisions of this section may be identified on a plant site plan, in log entries, or by other appropriate methods.

(iv) The dates of each pressure test required in §63.178(b) of subpart H of this part, the test pressure, and the pressure drop observed during the test.

(v) Records of any visible, audible, or olfactory evidence of fluid loss.

(vi) When a process equipment train does not pass two consecutive pressure tests, the following information shall be recorded in a log and kept for 2 years:

(A) The date of each pressure test and the date of each leak repair attempt.

(B) Repair methods applied in each attempt to repair the leak.

(C) The reason for the delay of repair.

(D) The expected date for delivery of the replacement equipment and the actual date of delivery of the replacement equipment.

(E) The date of successful repair.

(6) *Records of compressor and pressure relief valve compliance tests.* The dates and results of each compliance test required for compressors subject to the provisions in §63.164(i) of subpart H of this part and the dates and results of the monitoring following a pressure release for each pressure relief device subject to the provisions in §63.165(a) and (b) of subpart H of this part. The results shall include:

(i) The background level measured during each compliance test.

(ii) The maximum instrument reading measured at each piece of equipment during each compliance test.

(7) *Records for closed-vent systems.* The owner or operator shall maintain records of the information specified in paragraphs (g)(7)(i) through (iii) of this section for closed-vent systems and control devices subject to the provisions of paragraph (b)(3)(ii) of this section. The records specified in paragraph (g)(7)(i) of this section shall be retained for the life of the equipment. The records specified in paragraphs (g)(7)(ii) and (iii) of this section shall be retained for 5 years.

(i) The design specifications and performance demonstrations specified in paragraphs (g)(7)(i)(A) through (D) of this section.

(A) Detailed schematics, design specifications of the control device, and piping and instrumentation diagrams.

(B) The dates and descriptions of any changes in the design specifications.

(C) The flare design (i.e., steam assisted, air assisted, or nonassisted) and the results of the compliance demonstration required by §63.11(b) of subpart A of this part.

(D) A description of the parameter or parameters monitored, as required in paragraph (b)(3)(ii) of this section, to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

(ii) Records of operation of closed-vent systems and control devices.

(A) Dates and durations when the closed-vent systems and control devices required in paragraph (c) of this section and §§63.164 through 63.166 of subpart H of this part are not operated as designed as indicated by the monitored parameters, including periods when a flare pilot light system does not have a flame.

(B) Dates and durations during which the monitoring system or monitoring device is inoperative.

(C) Dates and durations of startups and shutdowns of control devices required in paragraph (c) of this section and §§63.164 through 63.166 of subpart H of this part.

(iii) Records of inspections of closed-vent systems subject to the provisions of §63.172 of subpart H of this part.

(A) For each inspection conducted in accordance with the provisions of §63.172(f)(1) or (2) of subpart H of this part during which no leaks were detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(B) For each inspection conducted in accordance with the provisions of §63.172(f)(1) or (f)(2) of subpart H of this part during which leaks were detected, the information specified in paragraph (g)(4) of this section shall be recorded.

(8) *Records for components in heavy liquid service.* Information, data, and

analysis used to determine that a piece of equipment or process is in heavy liquid service shall be recorded. Such a determination shall include an analysis or demonstration that the process fluids do not meet the criteria of "in light liquid or gas/vapor service." Examples of information that could document this include, but are not limited to, records of chemicals purchased for the process, analyses of process stream composition, engineering calculations, or process knowledge.

(9) *Records of exempt components.* Identification, either by list, location (area or group), or other method of equipment in organic HAP service less than 300 hr/yr subject to the provisions of this section.

(10) *Records of alternative means of compliance determination.* Owners and operators choosing to comply with the requirements of § 63.179 of subpart H of this part shall maintain the following records:

(i) Identification of the process(es) and the organic HAP they handle.

(ii) A schematic of the process, enclosure, and closed-vent system.

(iii) A description of the system used to create a negative pressure in the enclosure to ensure that all emissions are routed to the control device.

(h) *Reporting Requirements.* (1) Each owner or operator of a source subject to this section shall submit the reports listed in paragraphs (h)(1)(i) and (ii) of this section.

(i) A Notification of Compliance Status report described in paragraph (h)(2) of this section, and

(ii) Periodic reports described in paragraph (h)(3) of this section.

(2) *Notification of compliance status report.* Each owner or operator of a source subject to this section shall submit the information specified in paragraphs (h)(2)(i) through (iii) of this section in the Notification of Compliance Status report described in § 63.1368(f). Section 63.9(j) of subpart A of this part shall not apply to the Notification of Compliance Status report.

(i) The notification shall provide the information listed in paragraphs (h)(2)(i)(A) through (C) of this section for each group of processes subject to the requirements of paragraphs (b) through (g) of this section.

(A) Identification of the group of processes.

(B) Approximate number of each equipment type (e.g., valves, pumps) in organic HAP service, excluding equipment in vacuum service.

(C) Method of compliance with the standard (for example, "monthly leak detection and repair" or "equipped with dual mechanical seals").

(ii) The notification shall provide the information listed in paragraphs (h)(2)(ii)(A) and (B) of this section for each process subject to the requirements of paragraph (b)(3)(iv) of this section and § 63.178(b) of subpart H of this part.

(A) Products or product codes subject to the provisions of this section, and

(B) Planned schedule for pressure testing when equipment is configured for production of products subject to the provisions of this section.

(iii) The notification shall provide the information listed in paragraphs (h)(2)(iii)(A) and (B) of this section for each process subject to the requirements in § 63.179 of subpart H of this part.

(A) Process identification.

(B) A description of the system used to create a negative pressure in the enclosure and the control device used to comply with the requirements of paragraph (b)(3)(ii) of this section.

(3) *Periodic reports.* The owner or operator of a source subject to this section shall submit Periodic reports.

(i) A report containing the information in paragraphs (h)(3)(ii), (iii), and (iv) of this section shall be submitted semiannually. The first Periodic report shall be submitted no later than 240 days after the date the Notification of Compliance Status report is due and shall cover the 6-month period beginning on the date the Notification of Compliance Status report is due. Each subsequent Periodic report shall cover the 6-month period following the preceding period.

(ii) For equipment complying with the provisions of paragraphs (b) through (g) of this section, the Periodic report shall contain the summary information listed in paragraphs (h)(3)(ii)(A) through (L) of this section for each monitoring period during the 6-month period.

(A) The number of valves for which leaks were detected as described in paragraph (e)(2) of this section, the percent leakers, and the total number of valves monitored;

(B) The number of valves for which leaks were not repaired as required in paragraph (e)(7) of this section, identifying the number of those that are determined nonrepairable;

(C) The number of pumps and agitators for which leaks were detected as described in paragraph (c)(2) of this section, the percent leakers, and the total number of pumps and agitators monitored;

(D) The number of pumps and agitators for which leaks were not repaired as required in paragraph (c)(3) of this section;

(E) The number of compressors for which leaks were detected as described in § 63.164(f) of subpart H of this part;

(F) The number of compressors for which leaks were not repaired as required in § 63.164(g) of subpart H of this part;

(G) The number of connectors for which leaks were detected as described in § 63.174(a) of subpart H of this part, the percent of connectors leaking, and the total number of connectors monitored;

(H) The number of connectors for which leaks were not repaired as required in § 63.174(d) of subpart H of this part, identifying the number of those that are determined nonrepairable;

(I) The facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible.

(J) The results of all monitoring to show compliance with §§ 63.164(i), 63.165(a), and 63.172(f) of subpart H of this part conducted within the semiannual reporting period.

(K) If applicable, the initiation of a monthly monitoring program under either paragraph (c)(4)(ii) or paragraph (e)(4)(i)(A) of this section.

(L) If applicable, notification of a change in connector monitoring alternatives as described in § 63.174(c)(1) of subpart H of this part.

(iii) For owners or operators electing to meet the requirements of § 63.178(b) of subpart H of this part, the Periodic report shall include the information listed in paragraphs (h)(3)(iii) (A) through (E) of this section for each process.

(A) Product process equipment train identification;

(B) The number of pressure tests conducted;

(C) The number of pressure tests where the equipment train failed either the retest or two consecutive pressure tests;

(D) The facts that explain any delay of repairs; and

(E) The results of all monitoring to determine compliance with § 63.172(f) of subpart H of this part.

(iv) Any change in the information submitted under paragraph (h)(2) of this section shall be provided in the next Periodic report.

§ 63.1364 Compliance dates.

(a) *Compliance dates for existing sources.* (1) An owner or operator of an existing affected source must comply with the provisions of this subpart within 3 years after June 23, 1999.

(2) Pursuant to section 112(i)(3)(B) of the CAA, an owner or operator of an existing source may request an

extension of up to 1 additional year to comply with the provisions of this subpart if the additional time is needed for the installation of controls.

(i) For purposes of this subpart, a request for an extension shall be submitted no later than 120 days prior to the compliance date specified in paragraph (a)(1) of this section, except as provided in paragraph (a)(2)(ii) of this section. The dates specified in § 63.6(i) of subpart A of this part for submittal of requests for extensions shall not apply to sources subject to this subpart.

(ii) An owner or operator may submit a compliance extension request after the date specified in paragraph (a)(1)(i) of this section provided the need for the compliance extension arose after that date and before the otherwise applicable compliance date, and the need arose due to circumstances beyond reasonable control of the owner or operator. This request shall include the data described in § 63.6(i)(8)(A), (B), and (D) of subpart A of this part.

(b) *Compliance dates for new and reconstructed sources.* An owner or operator of a new or reconstructed affected source must comply with the provisions of this subpart on June 23, 1999 or upon startup, whichever is later.

§ 63.1365 Test methods and initial compliance procedures.

(a) *General.* Except as specified in paragraph (a)(4) of this section, the procedures specified in paragraphs (c), (d), (e), (f), and (g) of this section are required to demonstrate initial compliance with § 63.1362(b), (c), (d), (f), and (g), respectively. The provisions in paragraph (a)(1) of this section apply to design evaluations that are used to demonstrate compliance with the standards for process vents and storage vessels. The provisions in paragraph (a)(2) of this section apply to performance tests that are specified in paragraphs (c), (d), and (e) of this section. The provisions in paragraph (a)(3) of this section describe initial compliance procedures for flares. The provisions in paragraph (a)(5) of this section are used to demonstrate initial compliance with the alternative standards specified in § 63.1362(b)(6) and (c)(4). The provisions in paragraph (a)(6) of this section are used to comply with the outlet concentration requirements specified in § 63.1362(b)(2)(iv)(A), (b)(3)(ii), (b)(4)(ii)(A), (b)(5)(ii), and (b)(5)(iii).

(1) *Design evaluation.* To demonstrate that a control device meets the required control efficiency, a design evaluation must address the composition and HAP concentration of the vent stream entering the control device. A design evaluation also must address other vent stream characteristics and control device operating parameters as specified in any one of paragraphs (a)(1)(i) through (vii) of this section, depending on the type of control device that is used. If the vent stream is not the only inlet to the control device, the efficiency demonstration also must consider all other vapors, gases, and liquids, other than fuels, received by the control device.

(i) For an enclosed combustion device used to comply with the provisions of § 63.1362(b)(2)(iv), (b)(4)(ii), (c)(2)(iv)(B), or (c)(3) with a minimum residence time of 0.5 seconds and a minimum temperature of 760 °C, the design evaluation must document that these conditions exist.

(ii) For a combustion control device that does not satisfy the criteria in paragraph (a)(1)(i) of this section, the design evaluation must document control efficiency and address the following characteristics, depending on the type of control device:

(A) For a thermal vapor incinerator, the design evaluation must consider the autoignition temperature of the organic HAP, must consider the vent stream flow rate, and must establish the design minimum and average temperature in the combustion zone and the combustion zone residence time.

(B) For a catalytic vapor incinerator, the design evaluation must consider the vent stream flow rate and must establish the design minimum and average temperatures across the catalyst bed inlet and outlet.

(C) For a boiler or process heater, the design evaluation must consider the vent stream flow rate, must establish the design minimum and average flame zone temperatures and combustion zone residence time, and must describe the method and location where the vent stream is introduced into the flame zone.

(iii) For a condenser, the design evaluation must consider the vent stream flow rate, relative humidity, and temperature, and must establish the design outlet organic HAP compound concentration level, design average temperature of the condenser exhaust vent stream, and the design average temperatures of the coolant fluid at the condenser inlet and outlet. The temperature of the gas stream exiting the condenser must be measured and used to establish the outlet organic HAP concentration.

(iv) For a carbon adsorption system that regenerates the carbon bed directly onsite in the control device such as a fixed-bed adsorber, the design evaluation must consider the vent stream flow rate, relative humidity, and temperature, and must establish the design exhaust vent stream organic compound concentration level, adsorption cycle time, number of carbon beds and their capacities, type and working capacity of activated carbon used for the carbon beds, design total regeneration stream mass or volumetric flow over the period of each complete carbon bed regeneration cycle, design carbon bed temperature after regeneration, design carbon bed regeneration time, and design service life of carbon. For vacuum desorption, the pressure drop must be included.

(v) For a carbon adsorption system that does not regenerate the carbon bed directly onsite in the control device such as a carbon canister, the design evaluation must consider the vent stream mass or volumetric flow rate, relative humidity, and temperature, and must establish the design exhaust vent stream organic compound concentration level, capacity of the carbon bed, type and working capacity of activated carbon used for the carbon bed, and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule.

(vi) For a scrubber, the design evaluation must consider the vent stream composition, constituent concentrations, liquid-to-vapor ratio, scrubbing liquid flow rate and concentration, temperature, and the reaction kinetics of the constituents with the scrubbing liquid. The design evaluation must establish the design exhaust vent stream organic compound concentration level and must include the additional information in paragraphs (a)(1)(vi)(A) and (B) of this section for trays and a packed column scrubber.

(A) Type and total number of theoretical and actual trays;

(B) Type and total surface area of packing for entire column, and for individual packed sections if column contains more than one packed section.

(vii) For fabric filters, the design evaluation must include the pressure drop through the device and the net gas-to-cloth ratio (i.e., cubic feet of gas per square feet of cloth).

(2) *Calculation of TOC or total organic HAP concentration.* The TOC concentration or total organic HAP concentration is the sum of the concentrations of the individual components. If compliance is being determined based on TOC, the owner or operator shall compute TOC for each run using Equation 6 of this subpart. If compliance with the percent reduction format of the standard is being

determined based on total organic HAP, the owner or operator shall compute total organic HAP using Equation 6 of this subpart, except that only organic HAP compounds shall be summed; when determining compliance with the wastewater provisions of § 63.1363(d), the organic HAP compounds shall consist of the organic HAP compounds in Table 9 of subpart G of this part.

$$CG_T = \frac{1}{m}\sum_{j=1}^{m}\left(\sum_{i=1}^{n} CGS_{i,j}\right) \quad \text{(Eq. 6)}$$

Where:

CG_T = total concentration of TOC in vented gas stream, average of samples, dry basis, ppmv

$CGS_{i,j}$ = concentration of sample components in vented gas stream for sample j, dry basis, ppmv

n = number of compounds in the sample

m = number of samples in the sample run

(3) *Initial compliance using flares.* When a flare is used to comply with the standards, the owner or operator shall comply with the provisions in § 63.11(b) of subpart A of this part.

(i) The initial compliance determination shall consist of a visible emissions determination using Method 22 of 40 CFR part 60, appendix A, as described in § 63.11(b)(4) of subpart A of this part, and a determination of net heating value of gas being combusted and exit velocity to comply with the requirements of § 63.11(b)(6) through (8) of subpart A of this part. The net heating value and exit velocity shall be based on the results of performance testing under the conditions described in paragraphs (b)(10) and (11) of this section.

(ii) An owner or operator is not required to conduct a performance test to determine percent emission reduction or outlet organic HAP or TOC concentration when a flare is used.

(4) *Exemptions from compliance demonstrations.* An owner or operator using any control device specified in paragraphs (a)(4)(i) through (ii) of this section is exempt from the initial compliance provisions in paragraphs (c), (d), and (e) of this section.

(i) A boiler or process heater with a design heat input capacity of 44 megawatts or greater.

(ii) A boiler or process heater into which the emission stream is introduced with the primary fuel.

(5) *Initial compliance with alternative standard.* Initial compliance with the alternative standards in § 63.1362(b)(6) and (c)(4) is demonstrated when the outlet TOC concentration is 20 ppmv or less, and the outlet HCl and chlorine concentration is 20 ppmv or less. To demonstrate initial compliance, the owner or operator shall be in compliance with the monitoring provisions in § 63.1366(b)(5) on the initial compliance date. The owner or operator shall use Method 18 of 40 CFR part 60, appendix A to determine the predominant organic HAP in the emission stream if the TOC monitor is calibrated on the predominant HAP.

(6) *Initial compliance with the 20 ppmv outlet limit.* Initial compliance with the 20 ppmv TOC and HCl and chlorine concentration is demonstrated when the outlet TOC concentration is 20 ppmv or less, and the outlet HCl and chlorine concentration is 20 ppmv or less. To demonstrate initial compliance, the operator shall use applicable test methods described in paragraphs (b)(1) through (9) of this section, and test under conditions described in paragraphs (b)(10) or (11) of this section, as applicable. The owner or operator shall comply with the monitoring provisions in § 63.1366(b)(1) through (5) on the initial compliance date.

(7) *Outlet concentration correction for supplemental gases.* If supplemental gases are added to a vent stream for which compliance with an outlet concentration standard in § 63.1362 or 63.1363 will be demonstrated, the owner or operator must correct the outlet concentration as specified in paragraphs (a)(7)(i) and (ii) of this section.

(i) *Combustion device.* If the vent stream is controlled with a combustion device, the owner or operator must comply with the provisions in paragraphs (a)(7)(i)(A) through (C) of this section.

(A) To comply with a TOC outlet concentration standard in § 63.1362(b)(2)(iv)(A), (b)(4)(ii)(A), (b)(6), (c)(2)(iv)(B), (c)(4), (d)(13), or § 63.172 of subpart H of this part, the actual TOC outlet concentration must be corrected to 3 percent oxygen.

(B) If the inlet stream to the combustion device contains any HCl, chlorine, or halogenated compounds, and the owner or operator elects to comply with a total HCl and chlorine outlet concentration standard in § 63.1362(b)(3)(ii), (b)(5)(ii), (b)(5)(iii), (b)(6), or (c)(4), the actual total HCl and chlorine outlet concentration must be corrected to 3 percent oxygen.

(C) The integrated sampling and analysis procedures of Method 3B of 40 CFR part 60, appendix A shall be used to determine the actual oxygen concentration ($\%O_{2d}$). The samples shall be taken during the same time that the TOC and HCl and chlorine samples are taken. The concentration corrected to 3 percent oxygen (C_c) shall be computed using Equation 7 of this subpart:

$$C_c = C_m\left(\frac{17.9}{20.9 - \%O_{2d}}\right) \quad \text{(Eq. 7)}$$

Where:

C_c = concentration of TOC or total HCl and chlorine corrected to 3 percent oxygen, dry basis, ppmv

C_m = total concentration of TOC or total HCl and chlorine in the vented gas stream, average of samples, dry basis, ppmv

$\%O_{2d}$ = concentration of oxygen measured in vented gas stream, dry basis, percent by volume

(ii) *Noncombustion devices.* If a control device other than a combustion device, and not in series with a combustion device, is used to comply with a TOC or total HCl and chlorine outlet concentration standard, the owner or operator must correct the actual concentration for supplemental gases using Equation 8 of this subpart.

$$C_a = C_m\left(\frac{V_s + V_a}{V_a}\right) \quad \text{(Eq. 8)}$$

Where:

C_a = corrected outlet TOC or total HCl and chlorine concentration, dry basis, ppmv

C_m = actual TOC or total HCl and chlorine concentration measured at control device outlet, dry basis, ppmv

V_a = total volumetric flow rate of affected streams vented to the control device

V_s = total volumetric flow rate of supplemental gases

(b) *Test methods and conditions.* When testing is conducted to measure emissions from an affected source, the test methods specified in paragraphs (b)(1) through (9) of this section shall be used. Compliance tests shall be performed under conditions specified in paragraphs (b)(10) and (11) of this section. Testing requirements for condensers are specified in paragraph (b)(12) of this section.

(1) Method 1 or 1A of appendix A of 40 CFR part 60 shall be used for sample and velocity traverses.

(2) Method 2, 2A, 2C, or 2D of appendix A of 40 CFR part 60 shall be used for velocity and volumetric flow rates.

(3) Method 3 of appendix A of 40 CFR part 60 shall be used for gas analysis.

(4) Method 4 of appendix A of 40 CFR part 60 shall be used for stack gas moisture.

(5) Concentration measurements shall be adjusted to negate the dilution effects

of introducing nonaffected gaseous streams into the vent streams prior to control or measurement. The following methods are specified for concentration measurements of organic compounds:

(i) Method 18 of appendix A of 40 CFR part 60 may be used to determine HAP concentration in any control device efficiency determination.

(ii) Method 25 of appendix A of 40 CFR part 60 may be used to determine total gaseous nonmethane organic concentration for control efficiency determinations in combustion devices.

(iii) Method 25A of appendix A of 40 CFR part 60 may be used to determine the HAP or TOC concentration for control device efficiency determinations under the conditions specified in Method 25 of appendix A of 40 CFR part 60 for direct measurement of an effluent with a flame ionization detector, or in demonstrating compliance with the 20 ppmv TOC outlet standard. If Method 25A of appendix A of 40 CFR part 60 is used to determine the concentration of TOC for the 20 ppmv standard, the instrument shall be calibrated on methane or the predominant HAP. If calibrating on the predominant HAP, the use of Method 25A of appendix A of 40 CFR part 60 shall comply with paragraphs (b)(5)(i)(A) through (C) of this section.

(A) The organic HAP used as the calibration gas for Method 25A, 40 CFR part 60, appendix A, shall be the single organic HAP representing the largest percent by volume.

(B) The use of Method 25A, 40 CFR part 60, appendix A, is acceptable if the response from the high level calibration gas is at least 20 times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on the most sensitive scale.

(C) The span value of the analyzer must be less than 100 ppmv.

(6) The methods in either paragraph (b)(6)(i) or (ii) of this section shall be used to determine the concentration, in mg/dscm, of total HCl and chlorine. Concentration measurements shall be adjusted to negate the dilution effects of introducing nonaffected gaseous streams into the vent streams prior to control or measurement.

(i) Method 26 or 26A of 40 CFR part 60, appendix A.

(ii) Any other method if the method or data have been validated according to the applicable procedures of Method 301 of appendix A of this part.

(7) Method 5 of appendix A of 40 CFR part 60 shall be used to determine the concentration of particulate matter in exhaust gas streams from bag dumps and product dryers.

(8) Wastewater analysis shall be conducted in accordance with § 63.144(b)(5)(i) through (iii) of subpart G of this part.

(9) Method 22 of appendix A of 40 CFR part 60 shall be used to determine visible emissions from flares.

(10) *Testing conditions for continuous processes.* Testing of process vents on equipment operating as part of a continuous process shall consist of three one-hour runs. Gas stream volumetric flow rates shall be measured every 15 minutes during each 1-hour run. Organic HAP concentration shall be determined from samples collected in an integrated sample over the duration of each one-hour test run, or from grab samples collected simultaneously with the flow rate measurements (every 15 minutes). If an integrated sample is collected for laboratory analysis, the sampling rate shall be adjusted proportionally to reflect variations in flow rate. For continuous gas streams, the emission rate used to determine compliance shall be the average emission rate of the three test runs.

(11) *Testing conditions for batch processes.* Except as provided in paragraph (b)(12) of this section for condensers, testing of emissions on equipment where the flow of gaseous emissions is intermittent (batch operations) shall be conducted at absolute peak-case conditions or hypothetical peak-case conditions, as specified in paragraphs (b)(11)(i) and (ii) of this section, respectively. Gas stream volumetric flow rates shall be measured at 15-minute intervals. Organic HAP, TOC, or HCl and chlorine concentration shall be determined from samples collected in an integrated sample over the duration of the test, or from grab samples collected simultaneously with the flow rate measurements (every 15 minutes). If an integrated sample is collected for laboratory analysis, the sampling rate shall be adjusted proportionally to reflect variations in flow rate. In all cases, a site-specific test plan shall be submitted to the Administrator for approval prior to testing in accordance with § 63.7(c) of subpart A of this part. The test plan shall include the emissions profile described in paragraph (b)(11)(iii) of this section. The term "HAP mass loading" as used in paragraphs (b)(11)(i) through (iii) of this section refers to the class of HAP, either organic or HCl and chlorine, that the control device is intended to control.

(i) *Absolute peak-case.* If the most challenging conditions for the control device occur under maximum HAP load, the absolute peak-case conditions shall be characterized by the criteria presented in paragraph (b)(11)(i)(A) or (B) of this section. Otherwise, absolute peak-case conditions are defined by the conditions in paragraph (b)(11)(i)(C) of this section.

(A) The period in which the inlet to the control device will contain at least 50 percent of the maximum HAP mass load that may be vented to the control device over any 8-hour period. An emission profile as described in paragraph (b)(11)(iii)(A) of this section shall be used to identify the 8-hour period that includes the maximum projected HAP load.

(B) A 1-hour period of time in which the inlet to the control device will contain the highest hourly HAP mass loading rate that may be vented to the control device. An emission profile as described in paragraph (b)(11)(iii)(A) of this section shall be used to identify the 1-hour period of maximum HAP loading.

(C) The period of time when a condition other than the maximum HAP load is most challenging for the control device. These conditions include, but are not limited to the following:

(*1*) Periods when the streams contain the highest combined VOC and HAP hourly load, as described by the emission profiles in paragraph (b)(11)(iii) of this section; or

(*2*) Periods when the streams contain HAP constituents that approach the limits of solubility for scrubbing media; or

(*3*) Periods when the streams contain HAP constituents that approach the limits of adsorptivity for carbon adsorption systems.

(ii) *Hypothetical peak-case.* Hypothetical peak-case conditions are simulated test conditions that, at a minimum, contain the highest total average hourly HAP load of emissions that would be predicted to be vented to the control device from the emissions profile described in either paragraph (b)(11)(iii)(B) or (C) of this section.

(iii) *Emissions profile.* The owner or operator may choose to perform tests only during those periods of the peak-case episode(s) that the owner or operator selects to control as part of achieving the required emission reduction. The owner or operator shall develop an emission profile for the vent to the control device that describes the characteristics of the vent stream at the inlet to the control device under either absolute or hypothetical peak-case conditions. The emissions profile shall be developed based on the applicable procedures described in paragraphs (b)(11)(iii)(A) through (C) of this section, as required by paragraphs (b)(11)(i) and (ii) of this section.

(A) *Emissions profile by process.* The emissions profile must consider all emission episodes that could contribute to the vent stack for a period of time that is sufficient to include all processes venting to the stack and shall consider production scheduling. The profile shall describe the HAP load to the device that equals the highest sum of emissions from the episodes that can vent to the control device during the period of absolute peak-case conditions specified in paragraph (b)(11)(i)(A), (B), or (C) as appropriate. Emissions per episode shall be calculated using the procedures specified in paragraph (c)(2) of this section. When complying with paragraph (b)(1)(i)(B) of this section, emissions per episode shall be divided by the duration of the episode if the duration of the episode is longer than 1 hour.

(B) *Emission profile by equipment.* The emission profile must consist of emissions that meet or exceed the highest hourly HAP load that would be expected under actual processing conditions. The profile shall describe equipment configurations used to generate the emission events, volatility of materials processed in the equipment, and the rationale used to identify and characterize the emission events. The emissions may be based on using a compound more volatile than compounds actually used in the process(es), and the emissions may be generated from all equipment in the process(es) or only selected equipment.

(C) *Emission profile by capture and control device limitation.* The emission profile shall consider the capture and control system limitations and the highest hourly emissions that can be routed to the control device, based on maximum flow rate and concentrations possible because of limitations on conveyance and control equipment (e.g., fans, LEL alarms and safety bypasses).

(iv) *Test duration.* Three runs, at a minimum of 1 hour each, are required for performance testing. Each run must occur over the same absolute or hypothetical peak-case conditions, as defined in paragraph (b)(11)(i) or (ii) of this section.

(12) *Testing requirements for condensers.* For emission streams controlled using condensers, the owner or operator shall calculate the condenser outlet gas temperature that is needed to meet the required percent reduction.

(c) *Initial compliance with process vent provisions.* The owner or operator of an affected source shall demonstrate compliance with the process vent standards in § 63.1362(b) using the procedures described in paragraphs (c)(1) through (3) of this section.

(1) Compliance with the process vent standards in § 63.1362(b) shall be demonstrated in accordance with the provisions specified in paragraphs (c)(1)(i) through (viii) of this section.

(i) Initial compliance with the emission limit cutoffs in § 63.1362(b)(2)(i) and (b)(4)(i) is demonstrated when the uncontrolled organic HAP emissions from the sum of all process vents within a process are less than or equal to 0.15 Mg/yr. Uncontrolled HAP emissions shall be determined using the procedures described in paragraph (c)(2) of this section.

(ii) Initial compliance with the emission limit cutoffs in § 63.1362(b)(3)(i) and (b)(5)(i) is demonstrated when the uncontrolled HCl and Cl_2 emissions from the sum of all process vents within a process are less than or equal to 6.8 Mg/yr. Initial compliance with the emission limit cutoffs in § 63.1362(b)(5)(ii) and (iii) is demonstrated when the uncontrolled HCl and Cl_2 emissions are greater than or equal to 6.8 Mg/yr or greater than or equal to 191 Mg/yr, respectively. Uncontrolled emissions shall be determined using the procedures described in paragraph (c)(2) of this section.

(iii) Initial compliance with the organic HAP percent reduction requirements specified in § 63.1362(b)(2)(ii), (b)(2)(iii), and (b)(4)(ii) is demonstrated by determining controlled HAP emissions using the procedures described in paragraph (c)(3) of this section, determining uncontrolled HAP emissions using the procedures described in paragraph (c)(2) of this section, and calculating the applicable percent reduction.

(iv) Initial compliance with the HCl and Cl_2 percent reduction requirements specified in § 63.1362(b)(3)(ii), (b)(5)(ii), and (b)(5)(iii) is demonstrated by determining controlled emissions of HCl and Cl_2 using the procedures described in paragraph (c)(3) of this section, determining uncontrolled emissions of HCl and Cl_2 using the procedures described in paragraph (c)(2) of this section, and calculating the applicable percent reduction.

(v) Initial compliance with the outlet concentration limits in § 63.1362(b)(2)(iv)(A), (b)(3)(ii), (b)(4)(ii)(A), (b)(5)(ii), and (b)(5)(iii) is demonstrated when the outlet TOC concentration is 20 ppmv or less and the outlet HCl and chlorine concentration is 20 ppmv or less. The owner or operator shall demonstrate compliance by fulfilling the requirements in paragraph (a)(6) of this section. If an owner or operator elects to develop an emissions profile by process as described in paragraph (b)(11)(iii)(A) of this section, uncontrolled emissions shall be determined using the procedures in paragraph (c)(2) of this section.

(vi) Initial compliance with the alternative standard in § 63.1362(b)(6) is demonstrated by fulfilling the requirements in paragraph (a)(5) of this section.

(vii) Initial compliance when using a flare is demonstrated by fulfilling the requirements in paragraph (a)(3) of this section.

(viii) No initial compliance demonstration is required for control devices specified in § 63.1362(l).

(2) *Uncontrolled emissions.* The owner or operator referred to from paragraphs (c)(1)(i) through (v) of this section shall calculate uncontrolled emissions according to the procedures described in paragraph (c)(2)(i) or (ii) of this section, as appropriate.

(i) *Emission estimation procedures.* The owner or operator shall determine uncontrolled HAP emissions using emission measurements and/or calculations for each batch emission episode according to the engineering evaluation methodology in paragraphs (c)(2)(i)(A) through (H) of this section.

(A) Individual HAP partial pressures in multicomponent systems shall be determined in accordance with the methods specified in paragraphs (c)(2)(i)(A)(*1*) through (*3*) of this section. Chemical property data may be obtained from standard references.

(1) If the components are miscible in one another, use Raoult's law to calculate the partial pressures;

(2) If the solution is a dilute aqueous mixture, use Henry's law constants to calculate partial pressures;

(3) If Raoult's law or Henry's law are not appropriate or available, use any of the methods specified in paragraphs (c)(2)(i)(A)(*3*)*(i)* through *(iii)* of this section.

(i) Use experimentally obtained activity coefficients;

(ii) Use models such as the group-contribution models to predict activity coefficients;

(iii) Assume the components of the system behave independently and use the summation of all vapor pressures from the HAP as the total HAP partial pressure;

(B) *Charging or filling.* Emissions from vapor displacement due to transfer of material to a vessel shall be calculated using Equation 9 of this subpart:

$$E = \frac{(V)}{(R)(T)} \times \sum_{i=1}^{n} (P_i)(MW_i) \qquad \text{(Eq. 9)}$$

Where:

E = mass of HAP emitted
P_i = partial pressure of the individual HAP
V = volume of gas displaced from the vessel
R = ideal gas law constant
T = temperature of the vessel vapor space; absolute
MW_i = molecular weight of the individual HAP

(C) *Purging.* Emissions from purging shall be calculated using Equation 10 of this subpart, except that for purge flow rates greater than 100 scfm, the mole fraction of HAP will be assumed to be 25 percent of the saturated value.

$$E = \sum_{i=1}^{n} P_i MW_i \times \frac{(V)(t)}{(R)(T)} \times \frac{P_T}{P_T - \sum_{j=1}^{m} (P_j)} \qquad \text{(Eq. 10)}$$

Where:
E = mass of HAP emitted
V = purge flow rate at the temperature and pressure of the vessel vapor space
R = ideal gas law constant
T = temperature of the vessel vapor space; absolute
P_i = partial pressure of the individual HAP
P_j = partial pressure of individual condensable VOC compounds (including HAP)
P_T = pressure of the vessel vapor space
MW_i = molecular weight of the individual HAP
t = time of purge
n = number of HAP compounds in the emission stream
m = number of condensable VOC compounds (including HAP) in the emission stream

(D) *Heating.* Emissions caused by heating the contents of a vessel to a temperature less than the boiling point shall be calculated using the procedures in either paragraph (c)(2)(i)(D)(*1*), (*2*), or (*4*) of this section, as appropriate. If the contents of a vessel are heated to the boiling point, emissions while boiling are assumed to be zero if the owner or operator is complying with the provisions in paragraph (d)(2)(i)(C)(*3*) of this section.

(1) If the final temperature to which the vessel contents are heated is lower than 50 K below the boiling point of the HAP in the vessel, then emissions shall be calculated using Equations 11 through 14 of this subpart.

(i) The mass of HAP emitted per episode shall be calculated using Equation 11 of this subpart:

$$E = \frac{\frac{\sum_{i=1}^{n} (P_i)_{T1}}{Pa_1} + \frac{\sum_{i=1}^{n} (P_i)_{T2}}{Pa_2}}{2} \times \Delta\eta \times MW_{HAP} \qquad \text{(Eq. 11)}$$

Where:
E = mass of HAP vapor displaced from the vessel being heated
$(P_i)_{Tn}$ = partial pressure of each HAP in the vessel headspace at initial (n = 1) and final (n = 2) temperatures
Pa_1 = initial noncondensable gas pressure in the vessel, as calculated using Equation 13 of this subpart
Pa_2 = final noncondensable gas pressure in the vessel, as calculated using Equation 13 of this subpart
$\Delta\eta$ = number of moles of noncondensable gas displaced, as calculated using Equation 12 of this subpart
MW_{HAP} = The average molecular weight of HAP present in the vessel, as calculated using Equation 14 of this subpart:
n = number of HAP compounds in the displaced vapor

(ii) The moles of noncondensable gas displaced shall be calculated using Equation 12 of this subpart:

$$\Delta\eta = \frac{V}{R}\left|\left(\frac{Pa_1}{T_1}\right) - \left(\frac{Pa_2}{T_2}\right)\right| \qquad \text{(Eq. 12)}$$

where:
$\Delta\eta$ = number of moles of noncondensable gas displaced
V = volume of free space in the vessel
R = ideal gas law constant
Pa_1 = initial noncondensable gas pressure in the vessel, as calculated using Equation 13 of this subpart
Pa_2 = final noncondensable gas pressure in the vessel, as calculated using Equation 13 of this subpart
T_1 = initial temperature of vessel contents, absolute
T_2 = final temperature of vessel contents, absolute

(iii) The initial and final pressure of the noncondensable gas in the vessel shall be calculated according to Equation 13 of this subpart:

$$Pa_n = Pa_{atm} - \sum_{j=1}^{m} (P_j)_{Tn} \qquad \text{(Eq. 13)}$$

Where:
Pa_n = partial pressure of noncondensable gas in the vessel headspace at initial (n = 1) and final (n = 2) temperatures
P_{atm} = atmospheric pressure
$(P_j)_{Tn}$ = partial pressure of each condensable volatile organic compound (including HAP) in the vessel headspace at the initial temperature (n = 1) and final (n = 2) temperature

(iv) The average molecular weight of HAP in the displaced gas shall be calculated using Equation 14 of this subpart:

$$MW_{HAP} = \sum_{i=1}^{n} \frac{\left((P_i)_{T_1} + (P_i)_{T_2}\right) MW_i}{\sum_{i=1}^{n}\left((P_i)_{T_1} + (P_i)_{T_2}\right)} \quad \text{(Eq. 14)}$$

Where:

MW_{HAP} = average molecular weight of HAP in the displaced gas

$(P_i)_{Tn}$ = partial pressure of each HAP in the vessel headspace at the initial (T_1) and final (T_2) temperatures

MW_i = molecular weight of each HAP

n = number of HAP compounds in the emission stream

(*2*) If the vessel contents are heated to a temperature greater than 50 K below the boiling point, then emissions from the heating of a vessel shall be calculated as the sum of the emissions calculated in accordance with paragraphs (c)(2)(i)(D)(*2*)(*i*) and (*ii*) of this section.

(*i*) For the interval from the initial temperature to the temperature 50 K below the boiling point, emissions shall be calculated using Equation 11 of this subpart, where T_2 is the temperature 50 K below the boiling point.

(*ii*) For the interval from the temperature 50 K below the boiling point to the final temperature, emissions shall be calculated as the summation of emissions for each 5 K increment, where the emission for each increment shall be calculated using Equation 11 of this subpart. If the final temperature of the heatup is lower than 5 K below the boiling point, the final temperature for the last increment shall be the final temperature of the heatup, even if the last increment is less than 5 K. If the final temperature of the heatup is higher than 5 K below the boiling point, the final temperature for the last increment shall be the temperature 5 K below the boiling point, even if the last increment is less than 5 K.

(*3*) While boiling, the vessel must be operated with a properly operated process condenser. An initial demonstration that a process condenser is properly operated is required for vessels that operate process condensers without secondary condensers that are air pollution control devices. The owner or operator must either measure the condenser exhaust gas temperature and show it is less than the boiling point of the substance(s) in the vessel, or perform a material balance around the vessel and condenser to show that at least 99 percent of the material vaporized while boiling is condensed. Uncontrolled emissions are assumed to be zero under these conditions. The initial demonstration shall be conducted for all appropriate operating scenarios and documented in the Notification of Compliance Status report as specified in § 63.1368(f).

(*4*)(*i*) As an alternative to the procedures described in paragraphs (c)(2)(i)(D)(*1*) and (*2*) of this section, emissions caused by heating a vessel to any temperature less than the boiling point may be calculated using Equation 15 of this subpart.

$$E = MW_{HAP} \times \left(N_{avg} \times \ln\left(\frac{P_T - \sum_{j=1}^{m}\left(P_{j,1}\right)}{P_T - \sum_{j=1}^{m}\left(P_{j,2}\right)} \right) - \left(n_{HAP,2} - n_{HAP,1}\right) \right) \quad \text{(Eq. 15)}$$

Where:

E = mass of HAP vapor displaced from the vessel being heated

N_{avg} = average gas space molar volume during the heating process, as calculated using Equation 16 of this subpart

P_T = total pressure in the vessel

$P_{i,1}$ = partial pressure of the individual HAP compounds at T_1

$P_{i,2}$ = partial pressure of the individual HAP compounds at T_2

MW_{HAP} = average molecular weight of the HAP compounds, as calculated using Equation 14 of this subpart

$n_{HAP,1}$ = number of moles of total HAP in the vessel headspace at T_1

$n_{HAP,2}$ = number of moles of total HAP in the vessel headspace at T_2

m = number of condensable VOC compounds (including HAP) in the emission stream

(*ii*) The average gas space molar volume during the heating process is calculated using Equation 16 of this subpart.

$$N_{avg} = \frac{VP_T}{2R}\left(\frac{1}{T_1} + \frac{1}{T_2}\right) \quad \text{(Eq. 16)}$$

Where:

N_{avg} = average gas space molar volume during the heating process

V = volume of free space in vessel

P_T = total pressure in the vessel

R = ideal gas law constant

T_1 = initial temperature of the vessel contents, absolute

T_2 = final temperature of the vessel contents, absolute

(*iii*) The difference in the number of moles of total HAP in the vessel headspace between the initial and final temperatures is calculated using Equation 17 of this subpart.

$$\left(n_{HAP,2} - n_{HAP,1}\right) = \frac{V}{(R)(T_2)}\sum_{i=1}^{n} P_{i,2} - \frac{V}{(R)(T_1)}\sum_{i=1}^{n} P_{i,1} \quad \text{(Eq. 17)}$$

Where:

$n_{HAP,2}$ = number of moles of total HAP in the vessel headspace at T_2

$n_{HAP,1}$ = number of moles of total HAP in the vessel headspace at T_1

V = volume of free space in vessel

R = ideal gas law constant

T_1 = initial temperature of the vessel contents, absolute

T_2 = final temperature of the vessel contents, absolute

$P_{i,1}$ = partial pressure of the individual HAP compounds at T_1

$P_{i,2}$=partial pressure of the individual HAP compounds at T_2

n=number of HAP compounds in the emission stream

(E) *Depressurization.* Emissions from depressurization shall be calculated using the procedures in paragraphs (c)(2)(i)(E)(*1*) through (*5*) of this section. Alternatively, the owner or operator may elect to calculate emissions from depressurization using the procedures in paragraph (c)(2)(i)(E)(*6*) of this section.

(*1*) The moles of HAP vapor initially in the vessel are calculated using Equation 18 of this subpart:

$$n_{HAP} = \frac{V}{R\,T} \times \sum_{i=1}^{n} (P_i) \qquad \text{(Eq. 18)}$$

Where:

n_{HAP}=moles of HAP vapor in the vessel

P_i=partial pressure of each HAP in the vessel vapor space

V=free volume in the vessel being depressurized

R=ideal gas law constant

T=absolute temperature in vessel

n=number of HAP compounds in the emission stream

(*2*) The initial and final moles of noncondensable gas present in the vessel are calculated using Equations 19 and 20 of this subpart:

$$n_1 = \frac{VP_{nc_1}}{RT} \qquad \text{(Eq. 19)}$$

$$n_2 = \frac{VP_{nc_2}}{RT} \qquad \text{(Eq. 20)}$$

Where:

n_1=initial number of moles of noncondensable gas in the vessel

n_2=final number of moles of noncondensable gas in the vessel

V=free volume in the vessel being depressurized

P_{nc1}=initial partial pressure of the noncondensable gas, as calculated using Equation 21 of this subpart

P_{nc2}=final partial pressure of the noncondensable gas, as calculated using Equation 22 of this subpart

R=ideal gas law constant

T=temperature, absolute

(*3*) The initial and final partial pressures of the noncondensable gas in the vessel are determined using Equations 21 and 22 of this subpart.

$$P_{ncl} = P_1 - \sum_{j=1}^{m} (P_j^*)(X_j) \qquad \text{(Eq. 21)}$$

$$P_{nc2} = P_2 - \sum_{j=1}^{m} (P_j^*)(x_j) \qquad \text{(Eq. 22)}$$

where:

P_{nc1}=initial partial pressure of the noncondensable gas

P_{nc2}=final partial pressure of the noncondensable gas

P_1 = initial vessel pressure

P_2=final vessel pressure

P_j^*=vapor pressure of each condensable VOC (including HAP) in the emission stream

X_j=mole fraction of each condensable VOC (including HAP) in the emission stream

m=number of condensable VOC compounds (including HAP) in the emission stream

(*4*) The moles of HAP emitted during the depressurization are calculated by taking an approximation of the average ratio of moles of HAP to moles of noncondensable and multiplying by the total moles of noncondensables released during the depressurization, using Equation 23 of this subpart:

Where:

$n_{HAP,e}$=moles of HAP emitted

$$n_{HAP,e} = \frac{\left(\frac{n_{HAP,1}}{n_1} + \frac{n_{HAP,2}}{n_2}\right)}{2}\left[n_1 - n_2\right] \qquad \text{(Eq. 23)}$$

$n_{HAP,1}$=moles of HAP vapor in vessel at the initial pressure, as calculated using Equation 18 of this subpart

$n_{HAP,2}$=moles of HAP vapor in vessel at the final pressure, as calculated using Equation 18 of this subpart

n_1=initial number of moles of noncondensable gas in the vessel, as calculated using Equation 19 of this subpart

n_2=final number of moles of noncondensable gas in the vessel, as calculated using Equation 19 of this subpart

(*5*) Use Equation 24 of this subpart to calculate the mass of HAP emitted:

$$E = n_{HAP,e} * MW_{HAP} \qquad \text{(Eq. 24)}$$

Where:

E=mass of HAP emitted

$n_{HAP,e}$=moles of HAP emitted, as calculated using Equation 23 of this subpart

MW_{HAP}=average molecular weight of the HAP as calculated using Equation 14 of this subpart

(*6*) As an alternative to the procedures in paragraphs (c)(2)(i)(E)(1) through (5) of this section, emissions from depressurization may be calculated using Equation 25 of this subpart:

$$E = \frac{V}{(R)\,(T)} \times \ln\left(\frac{P_1 - \sum_{j=1}^{m}(P_j)}{P_2 - \sum_{j=1}^{m}(P_j)}\right) \times \sum_{i=1}^{n}(P_i)\,(MW_i) \qquad \text{(Eq. 25)}$$

where:

V=free volume in vessel being depressurized

R=ideal gas law constant

T=temperature of the vessel, absolute

P_1=initial pressure in the vessel

P_2=final pressure in the vessel

P_i=partial pressure of the individual HAP compounds

P_j=partial pressure of individual condensable VOC compounds (including HAP)
MW_i=molecular weight of the individual HAP compounds
n=number of HAP compounds in the emission stream
m=number of condensable VOC compounds (including HAP) in the emission stream

$$E = \frac{(MWs)(La)(t)}{MW_{nc}} \left(\frac{\sum_{i=1}^{n} P_i}{P_T - \sum_{j=1}^{m} P_j} \right) \quad \text{(Eq. 26)}$$

Where:
E=mass of HAP emitted
P_T=absolute pressure of receiving vessel or ejector outlet conditions, if there is no receiver
P_i=partial pressure of individual HAP at the receiver temperature or the ejector outlet conditions
P_j=partial pressure of individual condensable VOC compounds (including HAP) at the receiver temperature or the ejector outlet conditions
L_a=total air leak rate in the system, mass/time
MW_{nc} = molecular weight of noncondensable gas
t=time of vacuum operation
MW_{HAP}=average molecular weight of HAP in the emission stream, as calculated using Equation 14 of this subpart, with HAP partial pressures calculated at the temperature of the receiver or ejector outlet, as appropriate
n=number of HAP components in the emission stream
m=number of condensable VOC compounds (including HAP) in the emission stream

(G) *Gas evolution.* Emissions from gas evolution shall be calculated using Equation 10 of this subpart with V calculated using Equation 27 of this subpart:

$$V = \frac{(W_g)(R)(T)}{(P_T)(MW_g)} \quad \text{(Eq. 27)}$$

Where:
V=volumetric flow rate of gas evolution
W_g=mass flow rate of gas evolution
R=ideal gas law constant
T=temperature at the exit, absolute
P_T=vessel pressure
MW_g=molecular weight of the evolved gas

(H) *Air drying.* Use Equation 28 of this subpart to calculate emissions from air drying:

$$E = B \times \left(\frac{PS_1}{100 - PS_1} - \frac{PS_2}{100 - PS_2} \right) \quad \text{(Eq. 28)}$$

Where:
E=mass of HAP emitted
B=mass of dry solids
PS_1=HAP in material entering dryer, weight percent
PS_2=HAP in material exiting dryer, weight percent.

(ii) *Engineering assessments.* The owner or operator shall conduct an engineering assessment to determine uncontrolled HAP emissions for each emission episode that is not due to vapor displacement, purging, heating, depressurization, vacuum systems, gas evolution, or air drying. For a given emission episode caused by any of these seven types of activities, the owner or operator also may request approval to determine uncontrolled HAP emissions based on an engineering assessment. All data, assumptions, and procedures used in the engineering assessment shall be documented in the Precompliance plan in accordance with § 63.1367(b). An engineering assessment includes, but is not limited to, the information and procedures described in paragraphs (c)(2)(ii)(A) through (D) of this section:

(A) Test results, provided the tests are representative of current operating practices at the process unit. If test data show a greater than 20 percent discrepancy between the test value and the estimated value, the owner or operator may estimate emissions based on the test data, and the results of the engineering assessment shall be included in the Notification of Compliance Status report.

(B) Bench-scale or pilot-scale test data representative of the process under representative operating conditions.

(C) Maximum flow rate, HAP emission rate, concentration, or other relevant parameter specified or implied within a permit limit applicable to the process vent.

(D) Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties. Examples of analytical methods include, but are not limited to:

(*1*) Use of material balances based on process stoichiometry to estimate maximum organic HAP concentrations;

(*2*) Estimation of maximum flow rate based on physical equipment design such as pump or blower capacities; and

(*3*) Estimation of HAP concentrations based on saturation conditions.

(3) *Controlled emissions.* Except for condensers, the owner or operator shall determine controlled emissions using the procedures in either paragraph (c)(3)(i) or (ii) of this section, as applicable. For condensers, controlled emissions shall be calculated using the emission estimation equations described in paragraph (c)(3)(iii) of this section. The owner or operator is not required to calculate controlled emissions from devices described in paragraph (a)(4) of this section or from flares for which compliance is demonstrated in accordance with paragraph (a)(3) of this section. If the owner or operator is complying with an outlet concentration standard and the control device uses supplemental gases, the outlet concentrations shall be corrected in accordance with the procedures described in paragraph (a)(7) of this section.

(i) *Small control devices, except condensers.* Controlled emissions for each process vent that is controlled using a small control device, except for a condenser, shall be determined by using the design evaluation described in paragraph (c)(3)(i)(A) of this section, or by conducting a performance test in accordance with paragraph (c)(3)(ii) of this section.

(A) *Design evaluation.* The design evaluation shall include documentation demonstrating that the control device being used achieves the required control efficiency under absolute or hypothetical peak-case conditions, as determined from the emission profile described in paragraph (b)(11)(iii) of this section. The control efficiency determined from this design evaluation shall be applied to uncontrolled emissions to estimate controlled emissions. The documentation must be conducted in accordance with the provisions in paragraph (a)(1) of this section. The design evaluation shall also include the value(s) and basis for the parameter(s) monitored under § 63.1366.

(B) Whenever a small control device becomes a large control device, the owner or operator must comply with the provisions in paragraph (c)(3)(ii) of this section and submit the test report in the next Periodic report.

(ii) *Large control devices, except condensers.* Controlled emissions for each process vent that is controlled using a large control device, except for a condenser, shall be determined by applying the control efficiency of the large control device to the estimated uncontrolled emissions. The control efficiency shall be determined by conducting a performance test on the control device as described in paragraphs (c)(3)(ii)(A) through (C) of this section, or by using the results of a previous performance test as described in paragraph (c)(3)(ii)(D) of this section. If the control device is intended to control only HCl and chlorine, the owner or operator may assume the control efficiency of organic HAP is 0 percent. If the control device is intended to control only organic HAP, the owner or operator may assume the control efficiency for HCl and chlorine is 0 percent.

(A) Except for control devices that are intended to meet outlet TOC or HCl and chlorine concentrations of 20 ppmv, the performance test shall be conducted by performing emission testing on the inlet and outlet of the control device following the test methods and procedures of paragraph (b) of this section. For control devices that meet outlet TOC or HCl and chlorine concentrations of 20 ppmv, the performance testing shall be conducted by performing emission testing on the outlet of the control device following the test methods and procedures of paragraph (b) of this section. Concentrations shall be calculated from the data obtained through emission testing according to the procedures in paragraph (a)(2) of this section.

(B) Performance testing shall be conducted under absolute or hypothetical peak-case conditions, as defined in paragraphs (b)(11)(i) and (ii) of this section.

(C) The owner or operator may elect to conduct more than one performance test on the control device for the purpose of establishing more than one operating condition at which the control device achieves the required control efficiency.

(D) The owner or operator is not required to conduct a performance test for any control device for which a previous performance test was conducted, provided the test was conducted using the same procedures specified in paragraphs (b)(1) through (11) of this section over conditions typical of the absolute or hypothetical peak-case, as defined in paragraphs (b)(11)(i) and (ii) of this section. The results of the previous performance test shall be used to demonstrate compliance.

(iii) *Condensers.* The owner or operator using a condenser as a control device shall determine controlled emissions using exhaust gas temperature measurements and calculations for each batch emission episode according to the engineering methodology in paragraphs (c)(3)(iii)(A) through (G) of this section. Individual HAP partial pressures shall be calculated as specified in paragraph (c)(2)(i) of this section.

(A) Emissions from vapor displacement due to transfer of material to a vessel shall be calculated using Equation 9 of this subpart with T set equal to the temperature of the receiver and the HAP partial pressures determined at the temperature of the receiver.

(B) Emissions from purging shall be calculated using Equation 10 of this subpart with T set equal to the temperature of the receiver and the HAP partial pressures determined at the temperature of the receiver.

(C) Emissions from heating shall be calculated using Equation 29 of this subpart. In Equation 29 of this subpart, $\Delta\eta$ is equal to the number of moles of noncondensable displaced from the vessel, as calculated using Equation 12 of this subpart. In Equation 29 of this subpart, the HAP average molecular weight shall be calculated using Equation 14 with the HAP partial pressures determined at the temperature of the receiver.

$$E = \Delta\eta \times \frac{\sum_{i=1}^{n} P_i}{P_T - \sum_{j=1}^{m} P_j} \times MW_{HAP} \qquad \text{(Eq. 29)}$$

Where:

E=mass of HAP emitted

$\Delta\eta$=moles of noncondensable gas displaced

P_T=pressure in the receiver

P_i=partial pressure of the individual HAP at the receiver temperature

P_j=partial pressure of the individual condensable VOC (including HAP) at the receiver temperature

n=number of HAP compounds in the emission stream

MW_{HAP}=the average molecular weight of HAP in vapor exiting the receiver, as calculated using Equation 14 of this subpart

m=number of condensable VOC (including HAP) in the emission stream

(D)(*1*) Emissions from depressurization shall be calculated using Equation 30 of this subpart.

$$E = (V_{nc1} - V_{nc2}) \times \frac{\sum_{i=1}^{n} (P_i)}{P_T - \sum_{j=1}^{m} (P_j)} \times \frac{P_T}{RT} \times MW_{HAP} \qquad \text{(Eq. 30)}$$

Where:

E=mass of HAP vapor emitted

V_{nc1}=initial volume of noncondensable in the vessel, corrected to the final pressure, as calculated using Equation 31 of this subpart

V_{nc2}=final volume of noncondensable in the vessel, as calculated using Equation 32 of this subpart

P_i=partial pressure of each individual HAP at the receiver temperature

P_j=partial pressure of each condensable VOC (including HAP) at the receiver temperature

P_T=receiver pressure

T=temperature of the receiver, absolute

R=ideal gas law constant

MW_{HAP}=the average molecular weight of HAP calculated using Equation 14 of this subpart with partial pressures determined at the receiver temperature

n=number of HAP compounds in the emission stream

m=number of condensable VOC (including HAP) in the emission stream

(2) The initial and final volumes of noncondensable gas present in the vessel, adjusted to the pressure of the receiver, are calculated using Equations 31 and 32 of this subpart.

$$V_{nc1} = \frac{VP_{nc_1}}{P_T} \qquad \text{(Eq. 31)}$$

$$V_{nc2} = \frac{VP_{nc_2}}{P_T} \qquad \text{(Eq. 32)}$$

Where:

V_{nc1}=initial volume of noncondensable gas in the vessel

V_{nc2}=final volume of noncondensable gas in the vessel

V=free volume in the vessel being depressurized

P_{nc1}=initial partial pressure of the noncondensable gas, as calculated using Equation 33 of this subpart

P_{nc2}=final partial pressure of the noncondensable gas, as calculated using Equation 34 of this subpart

P_T=pressure of the receiver

(3) Initial and final partial pressures of the noncondensable gas in the vessel are determined using Equations 33 and 34 of this subpart.

$$P_{nc1} = P_1 - \sum_{j=1}^{m} P_j \qquad \text{(Eq. 33)}$$

$$P_{nc2} = P_2 - \sum_{j=1}^{m} P_j \qquad \text{(Eq. 34)}$$

Where:

P_{nc1}=initial partial pressure of the noncondensable gas in the vessel

P_{nc2}=final partial pressure of the noncondensable gas in the vessel

P_1=initial vessel pressure

P_2=final vessel pressure

P_j=partial pressure of each condensable VOC (including HAP) in the vessel

m=number of condensable VOC (including HAP) in the emission stream

(E) Emissions from vacuum systems shall be calculated using Equation 26 of this subpart.

(F) Emissions from gas evolution shall be calculated using Equation 8 with V calculated using Equation 27 of this subpart, T set equal to the receiver temperature, and the HAP partial pressures determined at the receiver temperature. The term for time, t, in Equation 10 of this subpart is not needed for the purposes of this calculation.

(G) Emissions from air drying shall be calculated using Equation 9 of this subpart with V equal to the air flow rate and P_i determined at the receiver temperature.

(d) *Initial compliance with storage vessel provisions.* The owner or operator of an existing or new affected source shall demonstrate initial compliance with the storage vessel standards in § 63.1362(c)(2) through (4) by fulfilling the requirements in either paragraph (d)(1), (2), (3), (4), (5), or (6) of this section, as applicable. The owner or operator shall demonstrate initial compliance with the planned routine maintenance provision in § 63.1362(c)(5) by fulfilling the requirements in paragraph (d)(7) of this section.

(1) *Percent reduction requirement for control devices.* If the owner or operator equips a Group 1 storage vessel with a closed vent system and control device, the owner or operator shall demonstrate initial compliance with the percent reduction requirement of § 63.1362(c)(2)(iv)(A) or (c)(3) either by calculating the efficiency of the control device using performance test data as specified in paragraph (d)(1)(i) of this section, or by preparing a design evaluation as specified in paragraph (d)(1)(ii) of this section.

(i) *Performance test option.* If the owner or operator elects to demonstrate initial compliance based on performance test data, the efficiency of the control device shall be calculated as specified in paragraphs (d)(1)(i)(A) through (D) of this section.

(A) At the reasonably expected maximum filling rate, Equations 35 and 36 of this subpart shall be used to calculate the mass rate of total organic HAP at the inlet and outlet of the control device.

$$E_i = K_2 \left(\sum_{j=1}^{n} C_{ij} M_{ij} \right) Q_i \qquad \text{(Eq. 35)}$$

$$E_o = K_2 \left(\sum_{j=1}^{n} C_{oj} M_{oj} \right) Q_o \qquad \text{(Eq. 36)}$$

Where:

C_{ij}, C_{oj}=concentration of sample component j of the gas stream at the inlet and outlet of the control device, respectively, dry basis, ppmv

E_i, E_o=mass rate of total organic HAP at the inlet and outlet of the control device, respectively, dry basis, kg/hr

M_{ij}, M_{oj}=molecular weight of sample component j of the gas stream at the inlet and outlet of the control device, respectively, g/gmole

Q_i, Q_o=flow rate of gas stream at the inlet and outlet of the control device, respectively, dscmm

K_2=constant, 2.494×10^{-6} (parts per million)$^{-1}$ (gram-mole per standard cubic meter) (kilogram/gram) (minute/hour), where standard temperature is 20 °C

(B) The percent reduction in total organic HAP shall be calculated using Equation 37 of this subpart:

$$R = \frac{E_i - E_o}{E_i}(100) \qquad \text{(Eq. 37)}$$

Where:

R=control efficiency of control device, percent

E_i=mass rate of total organic HAP at the inlet to the control device as calculated under paragraph (d)(1)(i)(A) of this section, kilograms organic HAP per hour

E_o=mass rate of total organic HAP at the outlet of the control device, as calculated under paragraph (d)(1)(i)(A) of this section, kilograms organic HAP per hour

(C) A performance test is not required to be conducted if the control device used to comply with § 63.1362(c) (storage tank provisions) is also used to comply with § 63.1362(b) (process vent provisions), provided compliance with § 63.1362(b) is demonstrated in accordance with paragraph (c) of this section and the demonstrated percent reduction is equal to or greater than 95 percent.

(D) A performance test is not required for any control device for which a previous test was conducted, provided the test was conducted using the same procedures specified in paragraph (b) of this section.

(ii) *Design evaluation option.* If the owner or operator elects to demonstrate initial compliance by conducting a design evaluation, the owner or operator shall prepare documentation in accordance with the design evaluation provisions in paragraph (a)(1) of this section, as applicable. The design evaluation shall demonstrate that the control device being used achieves the required control efficiency when the storage vessel is filled at the reasonably expected maximum filling rate.

(2) *Outlet concentration requirement for control devices.* If the owner or operator equips a Group 1 storage vessel with a closed vent system and control device, the owner or operator shall demonstrate initial compliance with the outlet concentration requirements of § 63.1362(c)(2)(iv)(B) or (c)(3) by fulfilling the requirements of paragraph (a)(6) of this section.

(3) *Floating roof.* If the owner or operator equips a Group 1 storage vessel with a floating roof to comply with the provisions in § 63.1362(c)(2) or (c)(3), the owner or operator shall demonstrate initial compliance by complying with the procedures described in paragraphs (d)(3)(i) and (ii) of this section.

(i) Comply with § 63.119(b), (c), or (d) of subpart G of this part, as applicable, with the differences specified in § 63.1362(d)(2)(i) through (iii).

(ii) Comply with the procedures described in § 63.120(a), (b), or (c) of subpart G of this part, as applicable, with the differences specified in § 63.1362(d)(2)(i), (iv), and (v).

(4) *Flares.* If the owner or operator controls the emissions from a Group 1 storage vessel with a flare, initial compliance is demonstrated by fulfilling the requirements in paragraph (a)(3) of this section.

(5) *Exemptions from initial compliance.* No initial compliance demonstration is required for control devices specified in paragraph (a)(4) of this section.

(6) *Initial compliance with alternative standard.* If the owner or operator equips a Group 1 storage vessel with a closed-vent system and control device, the owner or operator shall demonstrate initial compliance with the alternative standard in § 63.1362(c)(4) by fulfilling the requirements of paragraph (a)(5) of this section.

(7) *Planned routine maintenance.* The owner or operator shall demonstrate initial compliance with the planned routine maintenance provisions of § 63.1362(c)(5) by including the anticipated periods of planned routine maintenance for the first reporting period in the Notification of Compliance Status report as specified in § 63.1368(f).

(e) *Initial compliance with wastewater provisions.* The owner or operator shall demonstrate initial compliance with the wastewater requirements by complying with the applicable provisions in § 63.145 of subpart G of this part, except that the owner or operator need not comply with the requirement to determine visible emissions that is specified in § 63.145(j)(1) of subpart G of this part, and references to compounds in Table 8 of subpart G of this part are not applicable for the purposes of this subpart.

(f) *Initial compliance with the bag dump and product dryer provisions.* Compliance with the particulate matter concentration limits specified in § 63.1362(e) is demonstrated when the concentration of particulate matter is less than 0.01 gr/dscf, as measured using the method described in paragraph (b)(7) of this section.

(g) *Initial compliance with the pollution prevention alternative standard.* The owner or operator shall demonstrate initial compliance with § 63.1362(h)(2) and (3) for a PAI process unit by preparing the demonstration summary in accordance with paragraph (g)(1) of this section and by calculating baseline and target annual HAP and VOC factors in accordance with paragraphs (g)(2) and (3) of this section. To demonstrate initial compliance with § 63.1362(h)(3), the owner or operator must also comply with the procedures for add-on control devices that are specified in paragraph (g)(4) of this section.

(1) *Demonstration summary.* The owner or operator shall prepare a pollution prevention demonstration summary that shall contain, at a minimum, the information in paragraphs (g)(1)(i) through (iii) of this section. The demonstration summary shall be included in the Precompliance report as specified in § 63.1368(e)(4).

(i) Descriptions of the methodologies and forms used to measure and record consumption of HAP and VOC compounds.

(ii) Descriptions of the methodologies and forms used to measure and record production of the product(s).

(iii) Supporting documentation for the descriptions provided in accordance with paragraphs (g)(1)(i) and (ii) of this section including, but not limited to, operator log sheets and copies of daily, monthly, and annual inventories of materials and products. The owner or operator must show how this documentation will be used to calculate the annual factors required in § 63.1366(f)(1).

(2) *Baseline factors.* The baseline HAP and VOC factors shall be calculated by dividing the consumption of total HAP and total VOC by the production rate, per process, for the first 3-year period in which the process was operational, beginning no earlier than the period consisting of the 1987 through 1989 calendar years. Alternatively, for a process that has been operational for less than 3 years, but more than 1 year, the baseline factors shall be established for the time period from startup of the process until the present.

(3) *Target annual factors.* The owner or operator must calculate target annual factors in accordance with either paragraph (g)(3)(i) or (ii) of this section.

(i) To demonstrate initial compliance with § 63.1362(h)(2), the target annual HAP factor must be equal to or less than 15 percent of the baseline HAP factor. For each reduction in a HAP that is also a VOC, the target annual VOC factor must be lower than the baseline VOC factor by an equivalent amount on a mass basis. For each reduction in a HAP that is not a VOC, the target annual factor must be equal to or less than the baseline VOC factor.

(ii) To demonstrate initial compliance with § 63.1362(h)(3)(i), the target annual HAP and VOC factors must be calculated as specified in paragraph (g)(3)(i) of this section, except that when "15 percent" is referred to in paragraph (g)(3)(i) of this section, "50 percent" shall apply for the purposes of this paragraph.

(4) *Requirements for add-on control devices.* Initial compliance with the requirements for add-on control devices in § 63.1362(h)(3)(ii) is demonstrated when the requirements in paragraphs (g)(4)(i) through (iii) of this section are met.

(i) The yearly reductions associated with add-on controls that meet the criteria of § 63.1362(h)(3)(ii)(A) through (D), must be equal to or greater than the amounts calculated using Equations 38 and 39 of this subpart:

$$HAP_{reduced} = (HF_{base})(0.85 - R_{P2})(M_{prod}) \quad \text{(Eq. 38)}$$

$$VOC_{reduced} = (VF_{base} - VF_{P2} - VF_{annual}) \times M_{prod} \quad \text{(Eq. 39)}$$

Where:

$HAP_{reduced}$ = the annual HAP emissions reduction required by add-on controls, kg/yr

HF_{base} = the baseline HAP factor, kg HAP consumed/kg product

R_{P2} = the fractional reduction in the annual HAP factor achieved using pollution prevention where R_{P2} is ≥0.5

$VOC_{reduced}$ = required VOC emission reduction from add-on controls, kg/yr

VF_{base} = baseline VOC factor, kg VOC emitted/kg production

VF_{P2} = reduction in VOC factor achieved by pollution prevention, kg VOC emitted/kg production

VF_{annual} = target annual VOC factor, kg VOC emitted/kg production

M_{prod} = production rate, kg/yr

(ii) Demonstration that the criteria in § 63.1362(i)(3)(ii)(A) through (D) are met shall be accomplished through a description of the control device and of the material streams entering and exiting the control device.

(iii) The annual reduction achieved by the add-on control shall be quantified using the methods described in paragraph (c) of this section.

(h) *Compliance with emissions averaging provisions.* An owner or operator shall demonstrate compliance with the emissions averaging provisions of § 63.1362(h) by fulfilling the requirements of paragraphs (h)(1) through (6) of this section.

(1) The owner or operator shall develop and submit for approval an Emissions Averaging Plan containing all the information required in § 63.1367(d). The Emissions Averaging Plan shall be submitted no later than 18 months prior to the compliance date of the standard. The Administrator shall determine within 120 calendar days whether the Emissions Averaging Plan submitted by sources using emissions averaging presents sufficient information. The Administrator shall either approve the Emissions Averaging Plan, request changes, or request that the owner or operator submit additional information. Once the Administrator receives sufficient information, the Administrator shall approve, disapprove, or request changes to the plan within 120 days. If the Emissions Averaging Plan is disapproved, the owner or operator must still be in compliance with the standard by the compliance date.

(2) For all points included in an emissions average, the owner or operator shall comply with the procedures that are specified in paragraphs (h)(2)(i) through (v) of this section.

(i) Calculate and record monthly debits for all Group 1 emission points that are controlled to a level less stringent than the standard for those emission points. Equations in paragraph (h)(5) of this section shall be used to calculate debits.

(ii) Calculate and record monthly credits for all Group 1 and Group 2 emission points that are overcontrolled to compensate for the debits. Equations in paragraph (h)(6) of this section shall be used to calculate credits. All process vent, storage vessel, and wastewater emission points except those specified in § 63.1362(h)(1) through (6) may be included in the credit calculation.

(iii) Demonstrate that annual credits calculated according to paragraph (h)(6) of this section are greater than or equal to debits calculated according to paragraph (h)(5) of this section for the same annual compliance period. The initial demonstration in the Emissions Averaging Plan or operating permit application that credit-generating emission points will be capable of generating sufficient credits to offset the debit-generating emission points shall be made under representative operating conditions. After the compliance date, actual operating data shall be used for all debit and credit calculations.

(iv) Demonstrate that debits calculated for a quarterly (3-month) period according to paragraph (h)(5) of this section are not more than 1.30 times the credits for the same period calculated according to paragraph (h)(6) of this section. Compliance for the quarter shall be determined based on the ratio of credits and debits from that quarter, with 30 percent more debits than credits allowed on a quarterly basis.

(v) Record and report quarterly and annual credits and debits as required in §§ 63.1367(d) and 63.1368(d).

(3) Credits and debits shall not include emissions during periods of malfunction. Credits and debits shall not include periods of startup and shutdown for continuous processes.

(4) During periods of monitoring excursions, credits and debits shall be adjusted as specified in paragraphs (h)(4)(i) through (iii) of this section.

(i) No credits shall be assigned to the credit-generating emission point.

(ii) Maximum debits shall be assigned to the debit-generating emission point.

(iii) The owner or operator may demonstrate to the Administrator that full or partial credits or debits should be assigned using the procedures in § 63.150(l) of subpart G of this part.

(5) Debits are generated by the difference between the actual emissions from a Group 1 emission point that is uncontrolled or controlled to a level less stringent than the applicable standard and the emissions allowed for the Group 1 emission point. Debits shall be calculated in accordance with the procedures specified in paragraphs (h)(5)(i) through (iv) of this section.

(i) Source-wide debits shall be calculated using Equation 40 of this subpart.

Debits and all terms of Equation 40 of this subpart are in units of Mg/month Where:

$$\text{Debits} = \sum_{i=1}^{n}\left[EPV_{iA} - (0.10)(EPV_{iU})\right] + \sum_{i=1}^{n}\left[ES_{iA} - (0.05)(ES_{iU})\right] + \sum_{i=1}^{n}\left[EWW_{iA} - (EWW_{iC})\right] \quad \text{(Eq. 40)}$$

EPV_{iU} = uncontrolled emissions from process i calculated according to the procedures specified in paragraph (h)(5)(ii) of this section

EPV_{iA} = actual emissions from each Group 1 process i that is uncontrolled or is controlled to a level less stringent than the applicable standard. EPV_{iA} is calculated using the procedures in paragraph (h)(5)(ii) of this section

ES_{iU} = uncontrolled emissions from storage vessel i calculated according to the procedures specified in paragraph (h)(5)(iii) of this section

ES_{iA} = actual emissions from each Group 1 storage vessel i that is uncontrolled or is controlled to a level less stringent than the applicable standard. ES_{iA} is calculated using the procedures in paragraph (h)(5)(iii) of this section

EWW_{iC} = emissions from each Group 1 wastewater stream i if the standard had been applied to the uncontrolled emissions. EWW_{iC} is calculated using the procedures in paragraph (h)(5)(iv) of this section

EWW_{iA} = actual emissions from each Group 1 wastewater stream i that is uncontrolled or is controlled to a level less stringent than the applicable standard. EWW_{iA} is calculated using the procedures in paragraph (h)(5)(iv) of this section

n = the number of emission points being included in the emissions average; the value of n is not necessarily the same for process vents, storage tanks, and wastewater

(ii) Emissions from process vents shall be calculated in accordance with the procedures specified in paragraphs (h)(5)(ii)(A) through (C) of this section.

(A) Except as provided in paragraph (h)(5)(ii)(C) of this section, uncontrolled emissions for process vents shall be calculated using the procedures that are specified in paragraph (c)(2) of this section.

(B) Except as provided in paragraph (h)(5)(ii)(C) of this section, actual emissions for process vents shall be calculated using the procedures specified in paragraphs (c)(2) and (c)(3) of this section, as applicable.

(C) As an alternative to the procedures described in paragraphs (h)(5)(ii)(A) and (B) of this section, for continuous processes, uncontrolled and actual emissions may be calculated by the procedures described in § 63.150(g)(2) of subpart G of this part. For purposes of complying with this paragraph, a 90 percent reduction shall apply instead of the 98 percent reduction in § 63.150(g)(2)(iii) of subpart G of this part, and the term "process condenser" shall apply instead of the term "recovery device" in § 63.150(g)(2) for the purposes of this subpart.

(iii) Uncontrolled emissions from storage vessels shall be calculated in accordance with the procedures described in paragraph (d)(1) of this section. Actual emissions from storage vessels shall be calculated using the procedures specified in § 63.150(g)(3)(ii), (iii), or (iv) of subpart G of this subpart, as appropriate, except that when § 63.150(g)(3)(ii)(B) refers to the procedures in § 63.120(d) for determining percent reduction for a control device, § 63.1365(d)(2) or (3) shall apply for the purposes of this subpart.

(iv) Emissions from wastewater shall be calculated using the procedures specified in § 63.150(g)(5) of subpart G of this part.

(6) Credits are generated by the difference between emissions that are allowed for each Group 1 and Group 2 emission point and the actual emissions from that Group 1 or Group 2 emission point that have been controlled after November 15, 1990 to a level more stringent than what is required in this subpart or any other State or Federal rule or statute. Credits shall be calculated in accordance with the procedures specified in paragraphs (h)(6)(i) through (v) of this section.

(i) Source-wide credits shall be calculated using Equation 41 of this subpart. Credits and all terms in Equation 41 of this subpart are in units of Mg/month, the baseline date is November 15, 1990, the terms consisting of a constant multiplied by the uncontrolled emissions are the emissions from each emission point subject to the standards in § 63.1362(b) and (c) that is controlled to a level more stringent than the standard.

Where:

$$\text{Credits} = D\sum_{i=1}^{n}\left[(0.10)(EPV1_{iU}) - EPV1_{iA}\right] + D\sum_{i=1}^{m}(EPV2_{iB} - EPV2_{iA}) + D\sum_{i=1}^{n}\left[(0.05)(ES1_{iU}) - ES1_{iA}\right] +$$
$$D\sum_{i=1}^{m}(ES2_{iB} - ES2_{iA}) + D\sum_{j=1}^{n}(EWW1_{iC} - EWW1_{iA}) + D\sum_{i=1}^{m}(EWW2_{iB} - EWW2_{iA}) \quad \text{(Eq. 41)}$$

$EPV1_{iU}$ = uncontrolled emissions from each Group 1 process i calculated according to the procedures in paragraph (h)(6)(iii)(A) of this section

$EPV1_{iA}$ = actual emissions from each Group 1 process i that is controlled to a level more stringent than the applicable standard. $EPV1_{iA}$ is calculated according to the procedures in paragraph (h)(6)(iii)(B) of this section

$EPV2_{iB}$ = emissions from each Group 2 process i at the baseline date. $EPV2_{iB}$ is calculated according to the procedures in paragraph (h)(6)(iii)(C) of this section

$EPV2_{iA}$ = actual emissions from each Group 2 process i that is controlled. $EPV2_{iA}$ is calculated according to the procedures in paragraph (h)(6)(iii)(C) of this section

$ES1_{iU}$ = uncontrolled emissions from each Group 1 storage vessel i calculated according to the procedures in paragraph (h)(6)(iv) of this section

$ES1_{iA}$ = actual emissions from each Group 1 storage vessel i that is controlled to a level more stringent that the applicable standard. $ES1_{iA}$ is calculated according to the procedures in paragraph (h)(6)(iv) of this section

$ES2_{iB}$ = emissions from each Group 2 storage vessel i at the baseline date. $ES2_{iB}$ is calculated according to the procedures in paragraph (h)(6)(iv) of this section

$ES2_{iA}$ = actual emissions from each Group 2 storage vessel i that is controlled. $ES2_{iA}$ is calculated according to the procedures in paragraph (h)(6)(iv) of this section

$EWW1_{iC}$ = emissions from each Group 1 wastewater stream i if the standard had been applied to the uncontrolled emissions. $EWW1_{iC}$ is calculated according to the procedures in paragraph (h)(6)(v) of this section

$EWW1_{iA}$ = emissions from each Group 1 wastewater stream i that is controlled to a level more stringent that the applicable standard. $EWW1_{iA}$ is calculated according to the procedures in paragraph (h)(6)(v) of this section

$EWW2_{iB}$ = emissions from each Group 2 wastewater stream i at the baseline date. $EWW2_{iB}$ is calculated according to the procedures in paragraph (h)(6)(v) of this section

$EWW2_{iA}$ = actual emissions from each Group 2 wastewater stream i that is controlled. $EWW2_{iA}$ is calculated according to the procedures in paragraph (h)(6)(v) of this section

n = number of Group 1 emission points that are included in the emissions average. The value of n is not necessarily the same for process vents, storage tanks, and wastewater

m = number of Group 2 emission points included in the emissions average. The value of m is not necessarily the same for process vents, storage tanks, and wastewater

D = discount factor equal to 0.9 for all credit-generating emission points except those controlled by a pollution prevention measure, which will not be discounted

(ii) For an emission point controlled using a pollution prevention measure, the nominal efficiency for calculating credits shall be as determined as described in § 63.150(j) of subpart G of this part.

(iii) Emissions from process vents shall be calculated in accordance with the procedures specified in paragraphs (h)(6)(iii)(A) through (C) of this section.

(A) Uncontrolled emissions from Group 1 process vents shall be calculated according to the procedures in paragraph (h)(5)(ii)(A) or (C) of this section.

(B) Actual emissions from Group 1 process vents with a nominal efficiency greater than the applicable standard or a pollution prevention measure that achieves reductions greater than the applicable standard shall be calculated using Equation 42 of this subpart:

$$EPV1_{iA} = EPV1_{iU} \times \left[1 - N_{eff}/100\right] \quad \text{(Eq. 42)}$$

Where:

$EPV1_{iA}$ = actual emissions from each Group 1 process i that is controlled to a level more stringent than the applicable standard

$EPV1_{iU}$ = uncontrolled emissions from each Group 1 process i

N_{eff} = nominal efficiency of control device or pollution prevention measure, percent

(C) Baseline and actual emissions from Group 2 process vents shall be calculated according to the procedures in § 63.150(h)(2)(iii) and (iv) with the following modifications:

(*1*) The term "90 percent reduction" shall apply instead of the term "98 percent reduction"; and

(*2*) When the phrase "paragraph (g)(2)" is referred to in § 63.150(h)(2)(iii) and (iv), the provisions in paragraph (h)(5)(ii) of this section shall apply for the purposes of this subpart.

(iv) Uncontrolled emissions from storage vessels shall be calculated according to the procedures described in paragraph (d)(1) of this section. Actual and baseline emissions from storage tanks shall be calculated according to the procedures specified in § 63.150(h)(3) of subpart G of this part, except when § 63.150(h)(3) refers to § 63.150(g)(3)(i), paragraph (d)(1) of this section shall apply for the purposes of this subpart.

(v) Emissions from wastewater shall be calculated using the procedures in § 63.150(h)(5) of subpart G of this part.

§ 63.1366 Monitoring and inspection requirements.

(a) To provide evidence of continued compliance with the standard, the owner or operator of any existing or new affected source shall install, operate, and maintain monitoring devices as specified in this section. During the initial compliance demonstration, maximum or minimum operating parameter levels, or other design and operating characteristics, as appropriate, shall be established for emission sources that will indicate the source is in compliance. Test data, calculations, or information from the evaluation of the control device design, as applicable, shall be used to establish the operating parameter level or characteristic.

(b) *Monitoring for control devices.* (1) *Parameters to monitor.* Except as specified in paragraph (b)(1)(i) of this section, for each control device, the owner or operator shall install and operate monitoring devices and operate within the established parameter levels to ensure continued compliance with the standard. Monitoring parameters are specified for control scenarios in paragraphs (b)(1)(ii) through (xii) of this section, and are summarized in Table 3 of this subpart.

(i) *Periodic verification.* For control devices that control vent streams containing total HAP emissions less than 0.91 Mg/yr, before control, monitoring shall consist of a periodic verification that the device is operating properly. This verification shall include, but not be limited to, a daily or more frequent demonstration that the unit is working as designed and may include the daily measurements of the parameters described in paragraphs (b)(1)(ii) through (xii) of this section. This demonstration shall be included in the Precompliance plan, to be submitted 6 months prior to the compliance date of the standard.

(ii) *Scrubbers.* For affected sources using liquid scrubbers, the owner or operator shall establish a minimum scrubber liquid flow rate or pressure drop as a site-specific operating parameter which must be measured and recorded at least once every 15 minutes during the period in which the scrubber is controlling HAP from an emission stream as required by the standards in § 63.1362. If the scrubber uses a caustic solution to remove acid emissions, the pH of the effluent scrubber liquid shall also be monitored once a day. The minimum scrubber liquid flow rate or pressure drop shall be based on the conditions under which the initial compliance demonstration was conducted.

(A) The monitoring device used to determine the pressure drop shall be certified by the manufacturer to be accurate to within a gage pressure of ±10 percent of the maximum pressure drop measured.

(B) The monitoring device used for measurement of scrubber liquid flowrate shall be certified by the manufacturer to

be accurate to within ±10 percent of the design scrubber liquid flowrate.

(C) The monitoring device shall be calibrated annually.

(iii) *Condensers.* For each condenser, the owner or operator shall establish the maximum condenser outlet gas temperature as a site-specific operating parameter which must be measured and recorded at least once every 15 minutes during the period in which the condenser is controlling HAP from an emission stream as required by the standards in § 63.1362.

(A) The temperature monitoring device must be accurate to within ±2 percent of the temperature measured in degrees Celsius or ±2.5°C, whichever is greater.

(B) The temperature monitoring device must be calibrated annually.

(iv) *Regenerative carbon adsorbers.* For each regenerative carbon adsorber, the owner or operator shall comply with the provisions in paragraphs (b)(1)(iv)(A) through (F) of this section.

(A) Establish the regeneration cycle characteristics specified in paragraphs (b)(1)(iv)(A) (*1*) through (*4*) of this section under absolute or hypothetical peak-case conditions, as defined in § 63.1365(b)(11)(i) or (ii).

(*1*) Minimum regeneration frequency (i.e., operating time since last regeneration);

(*2*) Minimum temperature to which the bed is heated during regeneration;

(*3*) Maximum temperature to which the bed is cooled, measured within 15 minutes of completing the cooling phase; and

(*4*) Minimum regeneration stream flow.

(B) Monitor and record the regeneration cycle characteristics specified in paragraphs (b)(1)(iv)(B) (*1*) through (*4*) of this section for each regeneration cycle.

(*1*) Regeneration frequency (i.e., operating time since end of last regeneration);

(*2*) Temperature to which the bed is heated during regeneration;

(*3*) Temperature to which the bed is cooled, measured within 15 minutes of the completion of the cooling phase; and

(*4*) Regeneration stream flow.

(C) Use a temperature monitoring device that is accurate to within ±2 percent of the temperature measured in degrees Celsius or ±2.5°C, whichever is greater.

(D) Use a regeneration stream flow monitoring device capable of recording the total regeneration stream flow to within ±10 percent of the established value (i.e., accurate to within ±10 percent of the reading).

(E) Calibrate the temperature and flow monitoring devices annually.

(F) Conduct an annual check for bed poisoning in accordance with manufacturer's specifications.

(v) *Nonregenerative carbon adsorbers.* For each nonregenerative carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly onsite in the control device, the owner or operator shall replace the existing carbon bed in the control device with fresh carbon on a regular schedule based on one of the following procedures:

(A) Monitor the TOC concentration level in the exhaust vent stream from the carbon adsorption system on a regular schedule, and replace the existing carbon with fresh carbon immediately when carbon breakthrough is indicated. The monitoring frequency shall be daily or at an interval no greater than 20 percent of the time required to consume the total carbon working capacity under absolute or hypothetical peak-case conditions as defined in § 63.1365(b)(11)(i) or (ii), whichever is longer.

(B) Establish the maximum time interval between replacement, and replace the existing carbon before this time interval elapses. The time interval shall be established based on the conditions anticipated under absolute or hypothetical peak-case, as defined in § 63.1365(b)(11)(i) or (ii).

(vi) *Flares.* For each flare, the presence of the pilot flame shall be monitored at least once every 15 minutes during the period in which the flare is controlling HAP from an emission stream subject to the standards in § 63.1362. The monitoring device shall be calibrated annually.

(vii) *Thermal incinerators.* For each thermal incinerator, the owner or operator shall monitor the temperature of the gases exiting the combustion chamber as the site-specific operating parameter which must be measured and recorded at least once every 15 minutes during the period in which the combustion device is controlling HAP from an emission stream subject to the standards in § 63.1362.

(A) The temperature monitoring device must be accurate to within ±0.75 percent of the temperature measured in degrees Celsius or ±2.5°C, whichever is greater.

(B) The monitoring device must be calibrated annually.

(viii) *Catalytic incinerators.* For each catalytic incinerator, the parameter levels that the owner or operator shall establish are the minimum temperature of the gas stream immediately before the catalyst bed and the minimum temperature difference across the catalyst bed. The owner or operator shall monitor the temperature of the gas stream immediately before and after the catalyst bed, and calculate the temperature difference across the catalyst bed, at least once every 15 minutes during the period in which the catalytic incinerator is controlling HAP from an emission stream subject to the standards in § 63.1362.

(A) The temperature monitoring devices must be accurate to within ±0.75 percent of the temperature measured in degrees Celsius or ±2.5°C, whichever is greater.

(B) The temperature monitoring devices must be calibrated annually.

(ix) *Process heaters and boilers.* (A) Except as specified in paragraph (b)(1)(ix)(B) of this section, for each boiler or process heater, the owner or operator shall monitor the temperature of the gases exiting the combustion chamber as the site-specific operating parameter which must be monitored and recorded at least every 15 minutes during the period in which the boiler or process heater is controlling HAP from an emission stream subject to the standards in § 63.1362.

(*1*) The temperature monitoring device must be accurate to within ±0.75 percent of the temperature measured in degrees Celsius or ±2.5°C, whichever is greater.

(*2*) The temperature monitoring device must be calibrated annually.

(B) The owner or operator is exempt from the monitoring requirements specified in paragraph (b)(1)(ix)(A) of this section if either:

(*1*) All vent streams are introduced with primary fuel; or

(*2*) The design heat input capacity of the boiler or process heater is 44 megawatts or greater.

(x) *Continuous emission monitor.* As an alternative to the parameters specified in paragraphs (b)(1)(ii) through (ix) of this section, an owner or operator may monitor and record the outlet HAP concentration or both the outlet TOC concentration and outlet total HCl and chlorine concentration at least every 15 minutes during the period in which the control device is controlling HAP from an emission stream subject to the standards in § 63.1362. The owner or operator need not monitor the total HCl and chlorine concentration if the owner or operator determines that the emission stream does not contain HCl or chlorine. The owner or operator need not monitor the TOC concentration if the owner or operator determines the emission stream does not contain organic compounds. The HAP or TOC monitor must meet the requirements of Performance

Specification 8 or 9 of appendix B of part 60 and must be installed, calibrated, and maintained, according to § 63.8 of subpart A of this part. As part of the QA/QC Plan, calibration of the device must include, at a minimum, quarterly cylinder gas audits. If supplemental gases are introduced before the control device, the monitored concentration shall be corrected as specified in § 63.1365(a)(7).

(xi) *Fabric filters.* For each fabric filter used to control particulate matter emissions from bag dumps and product dryers subject to § 63.1362(e), the owner or operator shall install, calibrate, maintain, and continuously operate a bag leak detection system that meets the requirements in paragraphs (b)(1)(xi)(A) through (G) of this section.

(A) The bag leak detection system sensor must provide output of relative particulate matter emissions.

(B) The bag leak detection system must be equipped with an alarm system that will sound when an increase in particulate matter emissions over a preset level is detected.

(C) For positive pressure fabric filters, a bag leak detector must be installed in each fabric filter compartment or cell. If a negative pressure or induced air filter is used, the bag leak detector must be installed downstream of the fabric filter. Where multiple bag leak detectors are required (for either type of fabric filter), the system instrumentation and alarm may be shared among detectors.

(D) The bag leak detection system shall be installed, operated, calibrated and maintained in a manner consistent with available guidance from the U.S. Environmental Protection Agency or, in the absence of such guidance, the manufacturer's written specifications and instructions.

(E) Calibration of the system shall, at a minimum, consist of establishing the relative baseline output level by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time.

(F) Following initial adjustment, the owner or operator shall not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as established in an operation and maintenance plan that is to be submitted with the Precompliance plan. In no event shall the sensitivity be increased more than 100 percent or decreased by more than 50 percent over a 365-day period unless such adjustment follows a complete baghouse inspection which demonstrates the baghouse is in good operating condition.

(G) If the alarm on a bag leak detection system is triggered, the owner or operator shall, within 1 hour of an alarm, initiate the procedures to identify the cause of the alarm and take corrective action as specified in the corrective action plan.

(xii) For each waste management unit, treatment process, or control device used to comply with § 63.1362(d), the owner or operator shall comply with the procedures specified in § 63.143 of subpart G of this part, except that when the procedures to request approval to monitor alternative parameters according to the procedures in § 63.151(f) are referred to in § 63.143(d)(3), the procedures in paragraph (b)(4) of this section shall apply for the purposes of this subpart.

(xiii) *Closed-vent system visual inspections.* The owner or operator shall perform monthly visual inspections of each closed vent system as specified in § 63.1362(j).

(2) *Averaging periods.* Averaging periods for parametric monitoring levels shall be established according to paragraphs (b)(2)(i) through (iii) of this section.

(i) Except as provided in paragraph (b)(2)(iii) of this section, a daily (24-hour) or block average shall be calculated as the average of all values for a monitored parameter level set according to the procedures in (b)(3)(iii) of this section recorded during the operating day or block.

(ii) The operating day or block shall be defined in the Notification of Compliance Status report. The operating day may be from midnight to midnight or another continuous 24-hour period. The operating block may be used as an averaging period only for vents from batch operations, and is limited to a period of time that is, at a maximum, equal to the time from the beginning to end of a series of consecutive batch operations.

(iii) Monitoring values taken during periods in which the control devices are not controlling HAP from an emission stream subject to the standards in § 63.1362, as indicated by periods of no flow or periods when only streams that are not subject to the standards in § 63.1362 are controlled, shall not be considered in the averages. Where flow to the device could be intermittent, the owner or operator shall install, calibrate and operate a flow indicator at the inlet or outlet of the control device to identify periods of no flow.

(3) *Procedures for setting parameter levels for control devices used to control emissions from process vents.* (i) *Small control devices.* Except as provided in paragraph (b)(1)(i) of this section, for devices controlling less than 10 tons/yr of HAP for which a performance test is not required, the parameteric levels shall be set based on the design evaluation required in § 63.1365(c)(3)(i)(A). If a performance test is conducted, the monitoring parameter level shall be established according to the procedures in paragraph (b)(3)(ii) of this section.

(ii) *Large control devices.* For devices controlling greater than or equal to 10 tons/yr of HAP for which a performance test is required, the parameter level must be established as follows:

(A) If the operating parameter level to be established is a maximum or minimum, it must be based on the average of the average values from each of the three test runs.

(B) The owner or operator may establish the parametric monitoring level(s) based on the performance test supplemented by engineering assessments and/or manufacturer's recommendations. Performance testing is not required to be conducted over the entire range of expected parameter values. The rationale for the specific level for each parameter, including any data and calculations used to develop the level(s) and a description of why the level indicates proper operation of the control device shall be provided in the Precompliance plan. Determination of the parametric monitoring level using these procedures is subject to review and approval by the Administrator.

(iii) *Parameter levels for control devices controlling batch process vents.* For devices controlling batch process vents alone or in combination with other streams, the level(s) shall be established in accordance with paragraph (b)(3)(iii)(A) or (B) of this section.

(A) A single level for the batch process(es) shall be calculated from the initial compliance demonstration.

(B) The owner or operator may establish separate levels for each batch emission episode or combination of emission episodes selected to be controlled. If separate monitoring levels are established, the owner or operator must provide a record indicating at what point in the daily schedule or log of processes required to be recorded per the requirements of § 63.1367(b)(7), the parameter being monitored changes levels and must record at least one reading of the new parameter level, even if the duration of monitoring for the new parameter level is less than 15 minutes.

(4) *Requesting approval to monitor alternative parameters.* The owner or operator may request approval to monitor parameters other than those required by paragraphs (b)(1)(ii) through (xiii) of this section. The request shall be submitted according to the

procedures specified in § 63.8(f) of subpart A of this part or in the Precompliance report (as specified in § 63.1368(e)).

(5) *Monitoring for the alternative standards.* For control devices that are used to comply with the provisions of § 63.1362(b)(6) and (c)(4), the owner or operator shall monitor and record the outlet TOC concentration and the outlet total HCl and chlorine concentration at least once every 15 minutes during the period in which the device is controlling HAP from emission streams subject to the standards in § 63.1362. A TOC monitor meeting the requirements of Performance Specification 8 or 9 of appendix B of 40 CFR part 60 shall be installed, calibrated, and maintained, according to § 63.8 of subpart A of this part. The owner or operator need not monitor the total HCl and chlorine concentration if the owner or operator determines that the emission stream does not contain HCl or chlorine. The owner or operator need not monitor for TOC concentration if the owner or operator determines that the emission stream does not contain organic compounds. If supplemental gases are introduced before the control device, the monitored concentration shall be corrected as specified in § 63.1365(a)(7).

(6) *Exceedances of operating parameters.* An exceedance of an operating parameter is defined as one of the following:

(i) If the parameter level, averaged over the operating day or block, is below a minimum value established during the initial compliance demonstration.

(ii) If the parameter level, averaged over the operating day or block, is above the maximum value established during the initial compliance demonstration.

(iii) A loss of all pilot flames for a flare during an operating day or block. Multiple losses of all pilot flames during an operating day constitutes one exceedance.

(iv) Each operating day or block for which the time interval between replacement of a nonregenerative carbon adsorber exceeds the interval established in paragraph (b)(1)(v) of this section.

(v) Each instance in which procedures to initiate the response to a bag leak detector alarm within 1 hour of the alarm as specified in the corrective action plan.

(7) *Excursions.* Excursions are defined by either of the two cases listed in paragraph (b)(7)(i) or (ii) of this section. An excursion also occurs if the periodic verification for a small control device is not conducted as specified in paragraph (b)(1)(i) of this section.

(i) When the period of control device operation is 4 hours or greater in an operating day or block and monitoring data are insufficient to constitute a valid hour of data, as defined in paragraph (b)(7)(iii) of this section, for at least 75 percent of the operating hours.

(ii) When the period of control device operation is less than 4 hours in an operating day or block and more than 1 of the hours during the period of operation does not constitute a valid hour of data due to insufficient monitoring data.

(iii) Monitoring data are insufficient to constitute a valid hour of data, as used in paragraphs (b)(7)(i) and (ii) of this section, if measured values are unavailable for any of the required 15-minute periods within the hour.

(8) *Violations.* Exceedances of parameters monitored according to the provisions of paragraphs (b)(1)(ii) and (b)(1) (iv) through (ix) of this section or excursions as defined by paragraphs (b)(7) (i) and (ii) of this section constitute violations of the operating limit according to paragraphs (b)(8) (i), (ii), and (iv) of this section. Exceedances of the temperature limit monitored according to the provisions of paragraph (b)(1)(iii) of this section or exceedances of the outlet concentrations monitored according to the provisions of paragraph (b)(1)(x) of this section constitute violations of the emission limit according to paragraphs (b)(8) (i), (ii), and (iv) of this section. Exceedances of the outlet concentrations monitored according to the provisions of paragraph (b)(5) of this section constitute violations of the emission limit according to the provisions of paragraphs (b)(8) (iii) and (iv) of this section.

(i) Except as provided in paragraph (b)(8)(iv) of this section, for episodes occurring more than once per day, exceedances of established parameter limits or excursions will result in no more than one violation per operating day for each monitored item of equipment utilized in the process.

(ii) Except as provided in paragraph (b)(8)(iv) of this section, for control devices used for more than one process in the course of an operating day, exceedances or excursions will result in no more than one violation per operating day, per control device, for each process for which the control device is in service.

(iii) Except as provided in paragraph (b)(8)(iv) of this section, exceedances of the 20 ppmv TOC outlet emission limit, averaged over the operating day, will result in no more than one violation per day per control device. Except as provided in paragraph (b)(8)(iv) of this section, exceedances of the 20 ppmv HCl and chlorine outlet emission limit, averaged over the operating day, will result in no more than one violation per day per control device.

(iv) Periods of time when monitoring measurements exceed the parameter values as well as periods of inadequate monitoring data do not constitute a violation if they occur during a startup, shutdown, or malfunction, and the facility follows its startup, shutdown, and malfunction plan.

(c) *Monitoring for uncontrolled emission rates.* The owner or operator shall demonstrate continuous compliance with the emission limit in § 63.1362 (b)(2)(i) or (b)(4)(i) by calculating daily a 365-day rolling summation of uncontrolled emissions based on the uncontrolled emissions per emission episode, as calculated using the procedures in § 63.1365(c)(2), and records of the number of batches produced. Each day that the summation for a process exceeds 0.15 Mg/yr is considered a violation of the emission limit.

(d) *Monitoring for equipment leaks.* The standard for equipment leaks is based on monitoring. All monitoring requirements for equipment leaks are specified in § 63.1363.

(e) *Monitoring for heat exchanger systems.* The standard for heat exchanger systems is based on monitoring. All monitoring requirements for heat exchanger systems are specified in § 63.1362(f).

(f) *Monitoring for the pollution prevention alternative standard.* The owner or operator of an affected source that chooses to comply with the requirements of § 63.1362(g) (2) or (3) shall calculate annual rolling average values of the HAP and VOC factors in accordance with the procedures specified in paragraph (f)(1) of this section. If complying with § 63.1362(g)(3), the owner or operator shall also comply with the monitoring requirements specified in paragraph (b) of this section for the applicable add-on air pollution control device.

(1) *Annual factors.* The annual HAP and VOC factors shall be calculated in accordance with the procedures specified in paragraphs (f)(1) (i) through (iii) of this section.

(i) The consumption of both total HAP and total VOC shall be divided by the production rate, per process, for 12-month periods at the frequency specified in either paragraph (f)(1) (ii) or (iii) of this section, as applicable.

(ii) For continuous processes, the annual factors shall be calculated every 30 days for the 12-month period preceding the 30th day (annual rolling

average calculated every 30 days). A process with both batch and continuous operations is considered a continuous process for the purposes of this section.

(iii) For batch processes, the annual factors shall be calculated every 10 batches for the 12-month period preceding the 10th batch (annual rolling average calculated every 10 batches). Additional annual factors shall be calculated every 12 months during the period before the 10th batch if more than 12 months elapse before the 10th batch is produced.

(2) *Violations.* Each rolling average that exceeds the target value established in § 63.1365(g)(3) is considered a violation of the emission limit.

(g) *Monitoring for emissions averaging.* The owner or operator of an affected source that chooses to comply with the requirements of § 63.1362(h) shall meet all monitoring requirements specified in paragraph (b) of this section, as applicable, for all processes, storage tanks, and waste management units included in the emissions average.

§ 63.1367 Recordkeeping requirements.

(a) *Requirements of subpart A of this part.* The owner or operator of an affected source shall comply with the recordkeeping requirements in subpart A of this part as specified in Table 1 of this subpart and in paragraphs (a)(1) through (5) of this section.

(1) *Data retention.* Each owner or operator of an affected source shall keep copies of all records and reports required by this subpart for at least 5 years, as specified in § 63.10(b)(1) of subpart A of this part.

(2) *Records of applicability determinations.* The owner or operator of a stationary source that is not subject to this subpart shall keep a record of the applicability determination, as specified in § 63.10(b)(3) of subpart A of this part.

(3) *Startup, shutdown, and malfunction plan.* The owner or operator of an affected source shall develop and implement a written startup, shutdown, and malfunction plan as specified in § 63.6(e)(3) of subpart A of this part. This plan shall describe, in detail, procedures for operating and maintaining the affected source during periods of startup, shutdown, and malfunction and a program for corrective action for a malfunctioning process, air pollution control, and monitoring equipment used to comply with this subpart. The owner or operator of an affected source shall keep the current and superseded versions of this plan onsite, as specified in § 63.6(e)(3)(v) of subpart A of this part. The owner or operator shall keep the startup, shutdown, and malfunction records specified in paragraphs (b)(3)(i) through (iii) of this section. Reports related to the plan shall be submitted as specified in § 63.1368(i).

(i) The owner or operator shall record the occurrence and duration of each malfunction of air pollution control equipment used to comply with this subpart, as specified in § 63.6(e)(3)(iii) of subpart A of this part.

(ii) The owner or operator shall record the occurrence and duration of each malfunction of continuous monitoring systems used to comply with this subpart.

(iii) For each startup, shutdown, or malfunction, the owner or operator shall record all information necessary to demonstrate that the procedures specified in the affected source's startup, shutdown, and malfunction plan were followed, as specified in § 63.6(e)(3)(iii) of subpart A of this part; alternatively, the owner or operator shall record any actions taken that are not consistent with the plan, as specified in § 63.6(e)(3)(iv) of subpart A of this part.

(4) *Recordkeeping requirements for sources with continuous monitoring systems.* The owner or operator of an affected source who installs a continuous monitoring system to comply with the alternative standards in § 63.1362(b)(6) or (c)(4) shall maintain records specified in § 63.10(c)(1) through (14) of subpart A of this part.

(5) *Application for approval of construction or reconstruction.* For new affected sources, each owner or operator shall comply with the provisions regarding construction and reconstruction in § 63.5 of subpart A of this part.

(b) *Records of equipment operation.* The owner or operator must keep the following records up-to-date and readily accessible:

(1) Each measurement of a control device operating parameter monitored in accordance with § 63.1366 and each measurement of a treatment process parameter monitored in accordance with the provisions of § 63.1362(d).

(2) For processes subject to § 63.1362(g), records of consumption, production, and the rolling average values of the HAP and VOC factors.

(3) For each continuous monitoring system used to comply with the alternative standards in § 63.1362(b)(6) and (c)(4), records documenting the completion of calibration checks and maintenance of the continuous monitoring systems.

(4) For processes in compliance with the 0.15 Mg/yr emission limit of § 63.1362(b)(2)(i) or (b)(4)(i), records of the rolling annual calculations of uncontrolled emissions.

(5) For each bag leak detector used to monitor particulate HAP emissions from a fabric filter, the owner or operator shall maintain records of any bag leak detection alarm, including the date and time, with a brief explanation of the cause of the alarm and the corrective action taken.

(6) The owner or operator of an affected source that complies with the standards for process vents, storage tanks, and wastewater systems shall maintain up-to-date, readily accessible records of the information specified in paragraphs (b)(6)(i) through (vii) of this section to document that HAP emissions or HAP loadings (for wastewater) are below the limits specified in § 63.1362:

(i) The initial calculations of uncontrolled and controlled emissions of gaseous organic HAP and HCl per batch for each process.

(ii) The wastewater concentrations and flow rates per POD and process.

(iii) The number of batches per year for each batch process.

(iv) The operating hours per year for continuous processes.

(v) The number of batches and the number of operating hours for processes that contain both batch and continuous operations.

(vi) The number of tank turnovers per year, if used in an emissions average or for determining applicability of a new PAI process unit.

(vii) A description of absolute or hypothetical peak-case operating conditions as determined using the procedures in § 63.1365(b)(11).

(viii) Periods of planned routine maintenance as described in § 63.1362(c)(5).

(7) Daily schedule or log of each operating scenario prior to its operation.

(c) *Records of equipment leak detection and repair.* The owner or operator of an affected source subject to the equipment leak standards in § 63.1363 shall implement the recordkeeping requirements specified in § 63.1363(g). All records shall be retained for a period of 5 years, in accordance with the requirements of § 63.10(b)(1) of subpart A of this part.

(d) *Records of emissions averaging.* The owner or operator of an affected source that chooses to comply with the requirements of § 63.1362(h) shall maintain up-to-date records of the following information:

(1) An Emissions Averaging Plan which shall include in the plan, for all emission points included in each of the emissions averages, the information listed in paragraphs (d)(1)(i) through (v) of this section.

(i) The identification of all emission points in each emissions average.

(ii) The values of all parameters needed for input to the emission debits and credits equations in § 63.1365(h).

(iii) The calculations used to obtain the debits and credits.

(iv) The estimated values for all parameters required to be monitored under § 63.1366(g) for each emission point included in an average. These parameter values, or as appropriate, limited ranges for parameter values, shall be specified as enforceable operating conditions for the operation of the process, storage vessel, or waste management unit, as appropriate. Changes to the parameters must be reported as required by § 63.1368(k).

(v) A statement that the compliance demonstration, monitoring, inspection, recordkeeping and reporting provisions in § 63.1365(h), § 63.1366(g), and § 63.1368(k) that are applicable to each emission point in the emissions average will be implemented beginning on the date of compliance.

(2) The Emissions Averaging Plan shall demonstrate that the emissions from the emission points proposed to be included in the average will not result in greater hazard or, at the option of the operating permit authority, greater risk to human health or the environment than if the emission points were controlled according to the provisions in § 63.1362(b) through (d).

(i) This demonstration of hazard or risk equivalency shall be made to the satisfaction of the operating permit authority.

(A) The Administrator may require an owner or operator to use specific methodologies and procedures for making a hazard or risk determination.

(B) The demonstration and approval of hazard or risk equivalency shall be made according to any guidance that the Administrator makes available for use or any other technically sound information or methods.

(ii) An Emissions Averaging Plan that does not demonstrate hazard or risk equivalency to the satisfaction of the Administrator shall not be approved. The Administrator may require such adjustments to the Emissions Averaging Plan as are necessary in order to ensure that the average will not result in greater hazard or risk to human health or the environment than would result if the emission points were controlled according to § 63.1362(b) through (d).

(iii) A hazard or risk equivalency demonstration must satisfy the requirements specified in paragraphs (d)(2)(iii) (A) through (C) of this section.

(A) Be a quantitative, comparative chemical hazard or risk assessment;

(B) Account for differences between averaging and nonaveraging options in chemical hazard or risk to human health or the environment; and

(C) Meet any requirements set by the Administrator for such demonstrations.

(3) Records as specified in paragraphs (a) and (b) of this section.

(4) A calculation of the debits and credits as specified in § 63.1365(h) for the last quarter and the prior four quarters.

(e) The owner or operator of an affected source subject to the requirements for heat exchanger systems in § 63.1362(g) shall retain the records as specified in § 63.104(f)(1)(i) through (iv) of subpart G of this part.

(f) For each vapor collection system or closed-vent system that contains bypass lines that could divert a vent stream away from the control device and to the atmosphere, the owner or operator shall keep a record of the information specified in either paragraph (f) (1) or (2) of this section.

(1) Hourly records of whether the flow indicator specified under § 63.1362(j)(1) was operating and whether a diversion was detected at any time during the hour, as well as records of the times and durations of all periods when the vent stream is diverted from the control device or the flow indicator is not operating.

(2) Where a seal mechanism is used to comply with § 63.1362(j)(2), hourly records of flow are not required. In such cases, the owner or operator shall record that the monthly visual inspection of the seals or closure mechanism has been done, and shall record the occurrence of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out, and records of any car-seal that has broken.

(g) *Records of primary use.* For a PAI process unit that is used to produce a given material for use as a PAI as well as for other purposes, the owner or operator shall keep records of the total production and the production for use as a PAI on a semiannual or more frequent basis if the use as a PAI is not the primary use.

§ 63.1368 Reporting requirements.

(a) The owner or operator of an affected source shall comply with the reporting requirements of paragraphs (b) through (l) of this section. The owner or operator shall also comply with applicable paragraphs of §§ 63.9 and 63.10 of subpart A of this part, as specified in Table 1 of this subpart.

(b) *Initial notification.* The owner or operator shall submit the applicable initial notification in accordance with § 63.9(b) or (d) of subpart A of this part.

(c) *Application for approval of construction or reconstruction.* The owner or operator who is subject to § 63.5(b)(3) of subpart A of this part shall submit to the Administrator an application for approval of the construction of a new major source, the reconstruction of a major affected source, or the reconstruction of a major affected source subject to the standards. The application shall be prepared in accordance with § 63.5(d) of subpart A of this part.

(d) *Notification of continuous monitoring system performance evaluation.* An owner or operator who is required by the Administrator to conduct a performance evaluation for a continuous monitoring system that is used to comply with the alternative standard in § 63.1362(b)(6) or (c)(4) shall notify the Administrator of the date of the performance evaluation as specified in § 63.8(e)(2) of subpart A of this part.

(e) *Precompliance plan.* The Precompliance plan shall be submitted at least 6 months prior to the compliance date of the standard. For new sources, the Precompliance plan shall be submitted to the Administrator with the application for approval of construction or reconstruction. The Administrator shall have 90 days to approve or disapprove the Precompliance plan. The Precompliance plan shall be considered approved if the Administrator either approves it in writing, or fails to disapprove it in writing within the 90-day time period. The 90-day period shall begin when the Administrator receives the Precompliance plan. If the Precompliance plan is disapproved, the owner or operator must still be in compliance with the standard by the compliance date. To change any of the information submitted in the Precompliance plan, the owner or operator shall notify the Administrator at least 90 days before the planned change is to be implemented; the change shall be considered approved if the Administrator either approves the change in writing, or fails to disapprove the change in writing within 90 days of receipt of the change. The Precompliance plan shall include the information specified in paragraphs (e)(1) through (5) of this section.

(1) Requests for approval to use alternative monitoring parameters or requests to set monitoring parameters according to § 63.1366(b)(4).

(2) Descriptions of the daily or per batch demonstrations to verify that control devices subject to

§ 63.1366(b)(1)(i) are operating as designed.

(3) Data and rationale used to support the parametric monitoring level(s) that are set according to § 63.1366(b)(3)(ii)(B).

(4) For owners and operators complying with the requirements of § 63.1362(i), the pollution prevention demonstration summary required in § 63.1365(g)(3).

(5) Data and rationale used to support an engineering assessment to calculate uncontrolled emissions from process vents as required in § 63.1365(c)(2)(ii).

(6) For fabric filters that are monitored with bag leak detectors, an operation and maintenance plan that describes proper operation and maintenance procedures, and a corrective action plan that describes corrective actions to be taken, and the timing of those actions, when the particulate matter concentration exceeds the setpoint and activates the alarm.

(f) *Notification of compliance status report.* The Notification of Compliance Status report required under § 63.9(h) shall be submitted no later than 150 calendar days after the compliance date and shall include the information specified in paragraphs (f)(1) through (7) of this section.

(1) The results of any applicability determinations, emission calculations, or analyses used to identify and quantify HAP emissions from the affected source.

(2) The results of emissions profiles, performance tests, engineering analyses, design evaluations, or calculations used to demonstrate compliance. For performance tests, results should include descriptions of sampling and analysis procedures and quality assurance procedures.

(3) Descriptions of monitoring devices, monitoring frequencies, and the values of monitored parameters established during the initial compliance determinations, including data and calculations to support the levels established.

(4) Operating scenarios.

(5) Descriptions of absolute or hypothetical peak-case operating and/or testing conditions for control devices.

(6) Identification of emission points subject to overlapping requirements described in § 63.1360(h) and the authority under which the owner or operator will comply, and identification of emission sources discharging to devices described by § 63.1362(l).

(7) Anticipated periods of planned routine maintenance during which the owner or operator would not be in compliance with the provisions in § 63.1362(c)(1) through (4).

(8) Percentage of total production from a PAI process unit that is anticipated to be produced for use as a PAI in the 3 years after either June 23, 1999 or startup, whichever is later.

(g) *Periodic reports.* The owner or operator shall prepare Periodic reports in accordance with paragraphs (g)(1) and (2) of this section and submit them to the Administrator.

(1) *Submittal schedule.* Except as provided in paragraphs (g)(1)(i) and (ii) of this section, the owner or operator shall submit Periodic reports semiannually, beginning 60 operating days after the end of the applicable reporting period. The first report shall be submitted no later than 240 days after the date the Notification of Compliance Status report is due and shall cover the 6-month period beginning on the date the Notification of Compliance Status report is due.

(i) The Administrator may determine on a case-by-case basis that more frequent reporting is necessary to accurately assess the compliance status of the affected source.

(ii) Quarterly reports shall be submitted when the monitoring data are used to comply with the alternative standards in § 63.1362(b)(6) or (c)(4) and the source experiences excess emissions. Once an affected source reports excess emissions, the affected source shall follow a quarterly reporting format until a request to reduce reporting frequency is approved. If an owner or operator submits a request to reduce the frequency of reporting, the provisions in § 63.10(e)(3) (ii) and (iii) of subpart A of this part shall apply, except that the term "excess emissions and continuous monitoring system performance report and/or summary report" shall mean "Periodic report" for the purposes of this section.

(2) *Content of periodic report.* The owner or operator shall include the information in paragraphs (g)(2)(i) through (vi) of this section, as applicable.

(i) Each Periodic report must include the information in § 63.10(e)(3)(vi)(A) through (M) of subpart A of this part, as applicable.

(ii) If the total duration of excess emissions, parameter exceedances, or excursions for the reporting period is 1 percent or greater of the total operating time for the reporting period, or the total continuous monitoring system downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the Periodic report must include the information in paragraphs (g)(2)(ii)(A) through (D) of this section.

(A) Monitoring data, including 15-minute monitoring values as well as daily average values of monitored parameters, for all operating days when the average values were outside the ranges established in the Notification of Compliance Status report or operating permit.

(B) Duration of excursions, as defined in § 63.1366(b)(7).

(C) Operating logs and operating scenarios for all operating days when the values are outside the levels established in the Notification of Compliance Status report or operating permit.

(D) When a continuous monitoring system is used, the information required in § 63.10(c)(5) through (13) of subpart A of this part.

(iii) For each vapor collection system or closed vent system with a bypass line subject to § 63.1362(j)(1), records required under § 63.1366(f) of all periods when the vent stream is diverted from the control device through a bypass line. For each vapor collection system or closed vent system with a bypass line subject to § 63.1362(j)(2), records required under § 63.1366(f) of all periods in which the seal mechanism is broken, the bypass valve position has changed, or the key to unlock the bypass line valve was checked out.

(iv) The information in paragraphs (g)(2)(iv)(A) through (D) of this section shall be stated in the Periodic report, when applicable.

(A) No excess emissions.

(B) No exceedances of a parameter.

(C) No excursions.

(D) No continuous monitoring system has been inoperative, out of control, repaired, or adjusted.

(v) For each storage vessel subject to control requirements:

(A) Actual periods of planned routine maintenance during the reporting period in which the control device does not meet the specifications of § 63.1362(c)(5); and

(B) Anticipated periods of planned routine maintenance for the next reporting period.

(vi) For each PAI process unit that does not meet the definition of primary use, the percentage of the production in the reporting period produced for use as a PAI.

(viii) Updates to the corrective action plan.

(h) *Notification of process change.* (1) Except as specified in paragraph (h)(2) of this section, whenever a process change is made, or any of the information submitted in the Notification of Compliance Status report changes, the owner or operator shall

submit a report quarterly. The report may be submitted as part of the next Periodic report required under paragraph (g) of this section. The report shall include:

(i) A brief description of the process change;

(ii) A description of any modifications to standard procedures or quality assurance procedures;

(iii) Revisions to any of the information reported in the original Notification of Compliance Status report under paragraph (f) of this section; and

(iv) Information required by the Notification of Compliance Status report under paragraph (f) of this section for changes involving the addition of processes or equipment.

(2) The owner or operator must submit a report 60 days before the scheduled implementation date of either of the following:

(i) Any change in the activity covered by the Precompliance report.

(ii) A change in the status of a control device from small to large.

(i) *Reports of startup, shutdown, and malfunction.* For the purposes of this subpart, the startup, shutdown, and malfunction reports shall be submitted on the same schedule as the Periodic reports required under paragraph (g) of this section instead of the schedule specified in § 63.10(d)(5)(i) of subpart A of this part. These reports shall include the information specified in § 63.1367(a)(3)(i) through (iii) and shall contain the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy. Reports are only required if a startup, shutdown, or malfunction occurred during the reporting period. Any time an owner or operator takes an action that is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall submit an immediate startup, shutdown, and malfunction report as specified in § 63.10(d)(5)(ii) of subpart A of this part.

(j) *Reports of equipment leaks.* The owner or operator of an affected source subject to the standards in § 63.1363, shall implement the reporting requirements specified in § 63.1363(h). Copies of all reports shall be retained as records for a period of 5 years, in accordance with the requirements of § 63.10(b)(1) of subpart A of this part.

(k) *Reports of emissions averaging.* The owner or operator of an affected source that chooses to comply with the requirements of § 63.1362(h) shall submit all information as specified in § 63.1367(d) for all emission points included in the emissions average. The owner or operator shall also submit to the Administrator all information specified in paragraph (g) of this section for each emission point included in the emissions average.

(1) The reports shall also include the information listed in paragraphs (k)(1)(i) through (iv) of this section:

(i) Any changes to the processes, storage tanks, or waste management unit included in the average.

(ii) The calculation of the debits and credits for the reporting period.

(iii) Changes to the Emissions Averaging Plan which affect the calculation methodology of uncontrolled or controlled emissions or the hazard or risk equivalency determination.

(iv) Any changes to the parameters monitored according to § 63.1366(g).

(2) Every second semiannual or fourth quarterly report, as appropriate, shall include the results according to § 63.1367(d)(4) to demonstrate the emissions averaging provisions of § 63.1362(h), § 63.1365(h), § 63.1366(g), and § 63.1367(d) are satisfied.

(l) *Reports of heat exchange systems.* The owner or operator of an affected source subject to the requirements for heat exchange systems in § 63.1362(f) shall submit information about any delay of repairs as specified in § 63.104(f)(2) of subpart F of this part, except that when the phrase "periodic reports required by § 63.152(c) of subpart G of this part" is referred to in § 63.104(f)(2) of subpart F of this part, the periodic reports required in paragraph (g) of this section shall apply for the purposes of this subpart.

(m) *Notification of performance test and test Plan.* The owner or operator of an affected source shall notify the Administrator of the planned date of a performance test at least 60 days before the test in accordance with § 63.7(b) of subpart A of this part. The owner or operator also must submit the test Plan required by § 63.7(c) of subpart A of this part and the emission profile required by § 63.1365(b)(10)(ii) with the notification of the performance test.

(n) *Request for extension of compliance.* The owner or operator may submit to the Administrator a request for an extension of compliance in accordance with § 63.1364(a)(2).

(o) The owner or operator who submits an operating permit application before the date the Emissions Averaging Plan is due shall submit the information specified in paragraphs (o)(1) through (3) of this section with the operating permit application instead of the Emissions Averaging Plan.

(1) The information specified in § 63.1367(d) for emission points included in the emissions average;

(2) The information specified in § 63.9(h) of subpart A of this part, as applicable; and

(3) The information specified in paragraph (e) of this section, as applicable.

§ 63.1369 Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 112(d) of the CAA, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) The authority conferred in § 63.177 of subpart H of this part, the authority to approve applications for determination of equivalent means of emission limitation, and the authority to approve alternative test methods shall not be delegated to any State.

TABLE 1 TO SUBPART MMM OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART MMM

Reference to subpart A	Applies to subpart MMM	Explanation
§ 63.1(a)(1)	Yes	Additional terms are defined in § 63.1361.
§ 63.1(a)(2)–(3)	Yes	
§ 63.1(a)(4)	Yes	Subpart MMM (this table) specifies applicability of each paragraph in subpart A to subpart MMM.
§ 63.1(a)(5)	N/A	Reserved.
§ 63.1(a)(6)–(7)	Yes	
§ 63.1(a)(8)	No	Discusses State programs.
§ 63.1(a)(9)	N/A	Reserved.
§ 63.1(a)(10)–(14)	Yes	

TABLE 1 TO SUBPART MMM OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART MMM—Continued

Reference to subpart A	Applies to subpart MMM	Explanation
§63.1(b)(1)	No	§63.1360 specifies applicability.
§63.1(b)(2)–(3)	Yes	
§63.1(c)(1)	Yes	Subpart MMM (this table) specifies the applicability of each paragraph in subpart A to sources subject to subpart MMM.
§63.1(c)(2)	No	Area sources are not subject to subpart MMM.
§63.1(c)(3)	N/A	Reserved.
§63.1(c)(4)–(5)	Yes	
§63.1(d)	N/A	Reserved.
§63.1(e)	Yes	
§63.2	Yes	Additional terms are defined in §63.1361; when overlap between subparts A and MMM occurs, subpart MMM takes precedence.
§63.3	Yes	Other units used in subpart MMM are defined in that subpart.
§63.4(a)(1)–(3)	Yes	
§63.4(a)(4)	N/A	Reserved.
§63.4(a)(5)–(c)	Yes	
§63.5(a)	Yes	Except the term "affected source" shall apply instead of the terms "source" and "stationary source" in §63.5(a)(1) of subpart A.
§63.5(b)(1)	Yes	
§63.5(b)(2)	N/A	Reserved.
§63.5(b)(3)–(5)	Yes	
§63.5(b)(6)	No	§63.1360(g) specifies requirements for determining applicability of added PAI equipment.
§63.5(c)	N/A	Reserved.
§63.5(d)–(e)	Yes	
§63.5(f)(1)	Yes	Except "affected source" shall apply instead of "source" in §63.5(f)(1) of subpart A.
§63.5(f)(2)	Yes	
§63.6(a)	Yes	
§63.6(b)(1)–(2)	No	§63.1364 specifies compliance dates.
§63.6(b)(3)–(4)	Yes	
§63.6(b)(5)	Yes.	
§63.6(b)(6)	N/A	Reserved.
§63.6(b)(7)	Yes	
§63.6(c)(1)–(2)	Yes	Except "affected source" shall apply instead of "source" in §63.6(c)(1)–(2) of subpart A.
§63.6(c)(3)–(4)	N/A	Reserved.
§63.6(c)(5)	Yes	
§63.6(d)	N/A	Reserved.
§63.6(e)	Yes	Except §63.1360 specifies that the standards in subpart MMM apply during startup and shutdown for batch processes; therefore, these activities would not be covered in the startup, shutdown, and malfunction Plan.
§63.6(f)	Yes	Except §63.1360 specifies that the standards in subpart MMM also apply during startup and shutdown for batch processes.
§63.6(g)	Yes	An alternative standard has been proposed; however, affected sources will have the opportunity to demonstrate other alternatives to the Administrator.
§63.6(h)	No	Subpart MMM does not contain any opacity or visible emissions standards.
§63.6(i)(1)	Yes	
§63.6(i)(2)	Yes	Except "affected source" shall apply instead of "source" in §63.6(i)(2)(i) and (ii) of subpart A.
§63.6(i)(3)–(14)	Yes	
§63.6(i)(15)	N/A	Reserved.
§63.6(i)(16)	Yes	
§63.6(j)	Yes	
§63.7(a)(1)	Yes	
§63.7(a)(2)(i)–(vi)	Yes	§63.1368 specifies that test results must be submitted in the Notification of Compliance Status due 150 days after the compliance date.
§63.7(a)(2)(vii)–(viii)	N/A	Reserved.
§63.7(a)(2)(ix)–(c)	Yes	
§63.7(d)	Yes	Except "affected source" shall apply instead of "source" in §63.7(d) of subpart A.
§63.7(e)(1)	Yes	§63.1365 contains test methods specific to PAI sources.
§63.7(e)(2)	Yes	
§63.7(e)(3)	Yes	Except §63.1365 specifies less than 3 runs for certain tests.
§63.7(e)(4)	Yes.	
§63.7(f)	Yes	
§63.7(g)(1)	Yes	Except §63.1368(a) specifies that the results of the performance test be submitted with the Notification of Compliance Status report
§63.7(g)(2)	N/A	Reserved.
§63.7(g)(3)	Yes	
§63.7(h)	Yes	
§63.8(a)(1)–(2)	Yes	

TABLE 1 TO SUBPART MMM OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART MMM—Continued

Reference to subpart A	Applies to subpart MMM	Explanation
§63.8(a)(3)	N/A	Reserved.
§63.8(a)(4)	Yes	
§63.8(b)(1)	Yes	
§63.8(b)(2)	No	§63.1366 specifies CMS requirements.
§63.8(b)(3)–(c)(3)	Yes	Except the submittal date of the immediate startup, shutdown, and malfunction reports for CMS events shall be 2 days as in §63.6(e)(3)(iv).
§63.8(c)(4)	No	§63.1366 specifies monitoring frequencies.
§63.8(c)(5)–(8)	No	
§63.8(d)–(f)(3)	Yes	
§63.8(f)(4)	Yes	Except §63.1368(b) specifies that requests may also be included in the Precompliance report.
§63.8(f)(5)	Yes	
§63.8(f)(6)	No	Subpart MMM does not require CEM's.
§63.8(g)	No	§63.1366 specifies data reduction procedures.
§63.9(a)–(d)	Yes	
§63.9(e)	No	
§63.9(f)	No	Subpart MMM does not contain opacity and visible emission standards.
§63.9(g)	No	
§63.9(h)(1)	Yes	
§63.9(h)(2)(i)	Yes	Except §63.1368(a)(1) specifies additional information to include in the Notification of Compliance Status report.
§63.9(h)(2)(ii)	No	§63.1368 specifies the Notification of Compliance Status report is to be submitted within 150 days after the compliance date.
§63.9(h)(3)	Yes	
§63.9(h)(4)	N/A	Reserved.
§63.9(h)(5)–(6)	Yes	
§63.9(i)–(j)	Yes	Except §63.9(j) does not apply for changes in information in the notification of compliance status report on equipment leaks as specified in §63.1363(h)(2).
§63.10(a)–(b)(1)	Yes	
§63.10(b)(2)	No	§63.1367 specifies recordkeeping requirements.
§63.10(b)(3)	Yes	
§63.10(c)	Yes	
§63.10(d)(1)	Yes	
§63.10(d)(2)	Yes	
§63.10(d)(3)	No	Subpart MMM does not include opacity and visible emission standards.
§63.10(d)(4)	Yes	
§63.10(d)(5)	Yes	Except that actions and reporting for batch processes do not apply during startup and shutdown.
§63.10(e)(1)–(2)(i)	Yes	
§63.10(e)(2)(ii)	No	Subpart MMM does not include opacity monitoring requirements.
§63.10(e)(3)	Yes	
§63.10(e)(4)	No	Subpart MMM does not include opacity monitoring requirements.
§63.10(f)	Yes	
§63.11–§63.15	Yes.	

TABLE 2 TO SUBPART MMM OF PART 63—STANDARDS FOR NEW AND EXISTING PAI SOURCES

Emission source	Applicability	Requirement
Process vents	Existing:	
	Processes having uncontrolled organic HAP emissions ≥0.15 Mg/yr.	90% for organic HAP per process or to outlet concentration of ≤20 ppmv TOC.
	Processes having uncontrolled HCl and chlorine emissions ≥6.8 Mg/yr.	94% for HCl and chlorine per process or to outlet HCl and chlorine concentration of ≤20 ppmv.
	Individual process vents meeting flow and mass emissions criteria that have gaseous organic HAP emissions controlled to less than 90% on or after November 10, 1997.	98% gaseous organic HAP control per vent or ≤20 ppmv TOC outlet limit.
	New:	
	Processes having uncontrolled organic HAP emissions ≥0.15 Mg/yr.	98% for organic HAP per process or ≤20 ppmv TOC.
	Processes having uncontrolled HCl and chlorine emissions ≥6.8 Mg/yr and <191 Mg/yr.	94% for HCl and chlorine per process or to outlet concentration of ≤20 ppmv HCl and chlorine.
	Processes having uncontrolled HCl and chlorine emissions ≥191 Mg/yr.	99% for HCl and chlorine per process or to outlet concentration of ≤20 ppmv HCl and chlorine.
Storage vessels	Existing: ≥75 m^3 capacity and vapor pressure ≥3.45 kPa	Install a floating roof, reduce HAP by 95% per vessel, or to outlet concentration of ≤20 ppmv TOC.
	New: ≥38 m^3 capacity and vapor pressure ≥16.5 kPa	Same as for existing sources.
	≥75 m^3 capacity and vapor pressure ≥3.45 kPa	Same as for existing sources.

TABLE 2 TO SUBPART MMM OF PART 63—STANDARDS FOR NEW AND EXISTING PAI SOURCES—Continued

Emission source	Applicability	Requirement
Wastewater[a]	Existing: Process wastewater with ≥10,000 ppmw Table 9 compounds at any flowrate or ≥1,000 ppmw Table 9 compounds at ≥10 L/min, and maintenance wastewater with HAP load ≥5.3 Mg per discharge event.	Reduce concentration of total Table 9 compounds to <50 ppmw (or other options).
	New:	
	Same criteria as for existing sources	Reduce concentration of total Table 9 compounds to <50 ppmw (or other options).
	Total HAP load in wastewater POD streams ≥2,100 Mg/yr..	99% reduction of Table 9 compounds from all streams.
Equipment leaks	Subpart H	Subpart H with minor changes, including monitoring frequencies consistent with the proposed CAR.
Product dryers and bag dumps.	Dryers used to dry PAI that is also a HAP, and bag dumps used to introduce feedstock that is a solid and a HAP.	Particulate matter concentration not to exceed 0.01 gr/dscf.
Heat exchange systems.	Each heat exchange system used to cool process equipment in PAI manufacturing operations.	Monitoring and leak repair program as in HON.

[a] Table 9 is listed in the appendix to subpart G of 40 CFR part 63.

TABLE 3 TO SUBPART MMM OF PART 63—MONITORING REQUIREMENTS FOR CONTROL DEVICES[a]

Control device	Monitoring equipment required	Parameters to be monitored	Frequency
All control devices	1. Flow indicator installed at all bypass lines to the atmosphere and equipped with continuous recorder or.	1. Presence of flow diverted from the control device to the atmosphere or.	Hourly records of whether the flow indicator was operating and whether a diversion was detected at any time during each hour.
	2. Valves sealed closed with car-seal or lock-and-key configuration.	2. Monthly inspections of sealed valves.	Monthly.
Scrubber	Liquid flow rate or pressure drop mounting device. Also a pH monitor if the scrubber is used to control acid emissions..	1. Liquid flow rate into or out of the scrubber or the pressure drop across the scrubber..	1. Every 15 minutes.
		2. pH of effluent scrubber liquid ...	2. Once a day.
Thermal incinerator	Temperature monitoring device installed in firebox or in ductwork immediately downstream of firebox[b].	Firebox temperature	Every 15 minutes.
Catalytic incinerator	Temperature monitoring device installed in gas stream immediately before and after catalyst bed.	Temperature difference across catalyst bed.	Every 15 minutes.
Flare	Heat sensing device installed at the pilot light.	Presence of a flame at the pilot light.	Every 15 minutes.
Boiler or process heater <44 megawatts and vent stream is not mixed with the primary fuel.	Temperature monitoring device installed in firebox[b].	Combustion temperature	Every 15 minutes.
Condenser	Temperature monitoring device installed at condenser exit.	Condenser exit (product side) temperature.	Every 15 minutes.
Carbon adsorber (nonregenerative)	None	Operating time since last replacement.	N/A.
Carbon adsorber (regenerative)	Stream flow monitoring device, and.	1. Total regeneration stream mass or volumetric flow during carbon bed regeneration cycle(s).	1. For each regeneration cycle, record the total regeneration stream mass or volumetric flow.
	Carbon bed temperature monitoring device.	2. Temperature of carbon bed after regeneration.	2. For each regeneration cycle, record the maximum carbon bed temperature.
		3. Temperature of carbon bed within 15 minutes of completing any cooling cycle(s).	3. Within 15 minutes of completing any cooling cycle, record the carbon bed temperature.
		4. Operating time since end of last regeneration.	4. Operating time to be based on worst-case conditions.
		5. Check for bed poisoning	5. Yearly.

[a] As an alternative to the monitoring requirements specified in this table, the owner or operator may use a CEM meeting the requirements of Performance Specifications 8 or 9 of appendix B of part 60 to monitor TOC every 15 minutes.

[b] Monitor may be installed in the firebox or in the ductwork immediately downstream of the firebox before any substantial heat exchange is encountered.

TABLE 4 TO SUBPART MMM OF PART 63—CONTROL REQUIREMENTS FOR ITEMS OF EQUIPMENT THAT MEET THE CRITERIA OF § 63.1362(K)

Item of equipment	Control requirement [a]
Drain or drain hub ...	(a) Tightly fitting solid cover (TFSC); or (b) TFSC with a vent to either a process, or to a control device meeting the requirements of § 63.1256(h)(2); or (c) Water seal with submerged discharge or barrier to protect discharge from wind.
Manhole [b]	(a) TFSC; or (b) TFSC with a vent to either a process, or to a fuel gas system, or to a control device meeting the requirements of § 63.1256(h)(2); or (c) If the item is vented to the atmosphere, use a TFSC with a properly operating water seal at the entrance or exit to the item to restrict ventilation in the collection system. The vent pipe shall be at least 90 cm in length and not exceeding 10.2 cm in nominal inside diameter.
Lift station	(a) TFSC; or (b) TFSC with a vent to either a process, or to a control device meeting the requirements of § 63.1256(h)(2); or (c) If the lift station is vented to the atmosphere, use a TFSC with a properly operating water seal at the entrance or exit to the item to restrict ventilation in the collection system. The vent pipe shall be at least 90 cm in length and not exceeding 10.2 cm in nominal inside diameter. The lift station shall be level controlled to minimize changes in the liquid level.
Trench	(a) TFSC; or (b) TFSC with a vent to either a process, or to a control device meeting the requirements of § 63.1256(h)(2); or (c) If the item is vented to the atmosphere, use a TFSC with a properly operating water seal at the entrance or exit to the item to restrict ventilation in the collection system. The vent pipe shall be at least 90 cm in length and not exceeding 10.2 cm in nominal inside diameter.
Pipe	Each pipe shall have no visible gaps in joints, seals, or other emission interfaces.
Oil/Water separator	(a) Equip with a fixed roof and route vapors to a process, or equip with a closed-vent system that routes vapors to a control device meeting the requirements of § 63.1256(h)(2); or (b) Equip with a floating roof that meets the equipment specifications of § 60.693 (a)(1)(i), (a)(1)(ii), (a)(2), (a)(3), and (a)(4).
Tank	Maintain a fixed roof.[c] If the tank is sparged [d] or used for heating or treating by means of an exothermic reaction, a fixed roof and a system shall be maintained that routes the organic hazardous air pollutants vapors to other process equipment or a fuel gas system, or a closed-vent system that routes vapors to a control device that meets the requirements of 40 CFR § 63.119(e)(1) or (e)(2).

[a] Where a tightly fitting solid cover is required, it shall be maintained with no visible gaps or openings, except during periods of sampling, inspection, or maintenance.

[b] Manhole includes sumps and other points of access to a conveyance system.

[c] A fixed roof may have openings necessary for proper venting of the tank, such as pressure/vacuum vent, j-pipe vent.

[d] The liquid in the tank is agitated by injecting compressed air or gas.

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16 ABSTRACT

National emissions standards to control emissions of HAP from major sources producing pesticide active ingredients were published in *Federal Register* 6/23/99, 64 FR 33550. This document contains information to help State and local agencies for air pollution control, as well as the regulated community, carry out these standards. The document summarizes the NESHAP requirements and inspection checklists, and example notification and reporting forms. The document also provides information on where to submit reports, go to for additional help and applicability of foam sources to such things as General Provisions and Title V. A copy of the rule is provided in hard copy format. An electronic version of this document can be download at *www.epa.gov/ttn/uatw/pest/pestpg.html*.

17 KEY WORDS AND DOCUMENT ANALYSIS

a DESCRIPTORS		b IDENTIFIERS/OPEN ENDED TERMS	c COSATI
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