

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

Contains Data for  
Postscript Only.

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

Prepared for:

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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**.

## **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:

- C if the rule applies to your plant and process
- C what compliance options are available
- C what to monitor, record, and report
- C 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](http://www.access.gpo.gov/su_docs/aces/aces140.html).

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

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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:

- C EPA's Unified Air Toxics Website ([www.epa.gov/ttn/uatw](http://www.epa.gov/ttn/uatw)). Look under Rules and Implementation, pesticide active ingredient, or [www.epa.gov/ttn/uatw/pest/pestpg.html](http://www.epa.gov/ttn/uatw/pest/pestpg.html)
- C Library Services Office, (MD-35), U.S. EPA, Research Triangle Park, NC 27711, or [www.epa.gov/natlibra/ols.html](http://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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*Help us publish better documents by  
filling out our survey*

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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) \_\_\_\_\_  
Other \_\_\_\_\_

2. What are your job responsibilities? (check any that apply)

Plant Operator  Maintenance  Plant Manager  Environmental Staff   
Regulator  Other: \_\_\_\_\_

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.                   |   |   |   |   |   |     |

4. What did you **like** about this document or **what helped you the most?** (be as specific as you can) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. What did you **not like** about this document or **what helped you the least?** (be as specific as you can) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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



## 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.

---

*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.

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.

**Existing Affected Sources**  
Initial Startup before November 10, 1997 (Rule proposal date)

**Pesticide Active Ingredient (PAI) Rule**  
Effective Date June 23, 1999

**If you are submitting a(n) ...**

| Initial Notification Report of Relevancy (§63.1368(b)) & (§63.9(b)(2))             | Precompliance Plan (§63.1368(e))                              | Compliance Extension Request (§63.1364(a)(2)(i))                        | Compliance Date (§63.1364(a)(l)) | Site-Specific Test Plan and Notification of Planned Performance Test (§63.1368(m)) | Initial Notification of Compliance Status (NOCS) (§63.1368(f))                 | Periodic Report (§63.1368(g))  | Startup, Shutdown, Malfunction Report (§63.1368(i))  |
|--|---|---|----------------------------------|--|--|--|--|
| <b>Then ...</b>  |   |   |                                  |  |  |  |  |
| Submit by <b>10/23/99</b> or within 120 days after source becomes subject to rule. | Submit by <b>12/23/01</b> or 6 months before compliance date. | Submit no later than <b>2/23/02</b> or 120 days before compliance date. | Must comply by <b>6/23/02</b>    | Submit <b>60 days</b> before Performance Test*                                     | Submit by <b>11/20/02</b> or 150 days after compliance date or initial startup | Submit by <b>7/20/03</b> or 240 days after initial NOCS' due date and every 6 months thereafter. | Submit by <b>7/20/03</b> or 240 days after initial NOCS' due date and every 6 months thereafter.** |

\* Results of performance tests must be included in the Notification of Compliance Status Report. Therefore, performance tests must be conducted prior to the submittal date of the Notification of Compliance Status Report, or within 180 days after startup of an existing affected source if the source begins operation after the effective date of the rule. (§63.7(a)(2)(iii))

\*\* Reports are only required if a startup, shutdown, or malfunction occurred during the reporting period. (§63.1368(i))

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

**New and Reconstructed Affected Sources**  
Initial Startup after November 10, 1997 (Rule proposal date)

**Pesticide Active Ingredient (PAI) Rule**  
Effective Date June 23, 1999

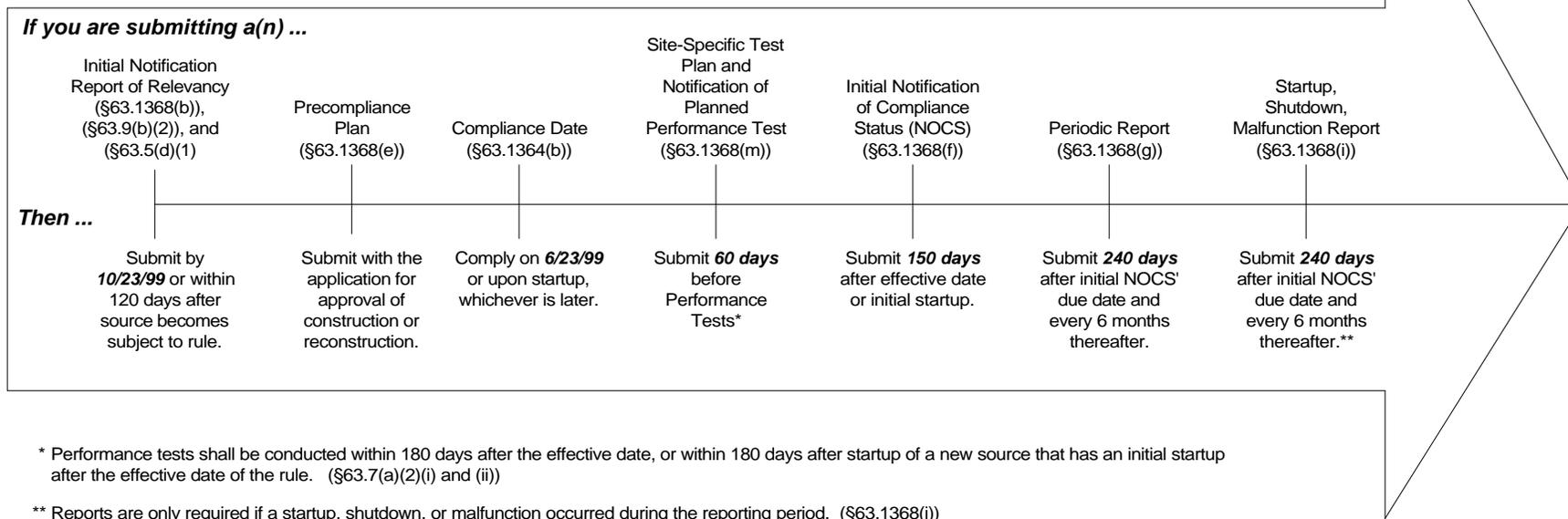


Figure 2-2. Compliance Timeline and Reporting Requirements for New and Reconstructed Sources.

## 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.

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.

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*See “how is nondedicated equipment regulated,” for more information.*

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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

## 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)]:

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*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.*

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- 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.*

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

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## 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

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

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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 ... <sup>a</sup>   |
|--|---|---|
| All emission points                                    | Other MACT rules in 40 CFR part 63 (e.g., the HON, pharmaceuticals, etc.) | <ul style="list-style-type: none"> <li>Choose, to the extent the subparts are consistent, under which subpart you'll maintain your records and reports</li> <li>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</li> </ul> |
| Equipment leaks  | Subpart I in 40 CFR part 63   | Comply with <b>either</b> 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 <b>only</b> with the provisions of Subpart MMM   |
| Process vents  | Subparts III, NNN, or RRR of 40 CFR part 60 [NSPS]                        | Comply <b>only</b> with Subpart MMM <b>if</b> 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 <b>either</b> with the monitoring, recordkeeping, and reporting requirements in Subpart MMM, or the other subparts.<br><br>However, you must report <b>all</b> 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   |

<sup>a</sup> 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

## Chapter 3 - Complying with requirements for process vents

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### 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<sub>2</sub>) 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<sub>2</sub> 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.

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

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

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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  $\geq 44$  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<sub>2</sub> 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.

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

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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   | <ul style="list-style-type: none"> <li>• reduce organic HAP emissions by \$98 percent (Option 1)</li> <li>• reduce emissions to #20 ppmv as TOC (Option 2)</li> <li>• use a flare that meets the requirements of §63.11(b) (Option 3)</li> <li>• use the alternative standard (Option 4)</li> <li>• continue reducing HAP emissions by percentage achieved on or before 11/10/97, if that amount is \$90 percent (Option 5)</li> </ul> |
|                     |  | any individual vent or any combination of vents, excluding large vents  | <ul style="list-style-type: none"> <li>• reduce emissions to #20 ppmv as TOC (Option 2)</li> <li>• use a flare that meets the requirements of §63.11(b) (Option 3)</li> <li>• use the alternative standard (Option 4)</li> </ul>   |
|                     |  | 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 <sub>2</sub> (>6.8 Mg/yr) | any individual vent or any combination of vents   | <ul style="list-style-type: none"> <li>• reduce emissions to #20 ppmv (Option 7)</li> <li>• use the alternative standard (Option 8)</li> </ul>   |
|                     |  | the collective emissions from all vents not controlled by Option 7 or Option 8                                    | reduce HCl/Cl <sub>2</sub> 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   | <ul style="list-style-type: none"> <li>• reduce emissions to #20 ppmv as TOC (Option 2)</li> <li>• use a flare that meets the requirements of §63.11(b) (Option 3)</li> <li>• use the alternative standard (Option 4)</li> </ul>   |
|                     |  | 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)  |

**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 <sub>2</sub> (>6.8 Mg/yr and #191 Mg/yr) | any individual vent or any combination of vents                                | <ul style="list-style-type: none"> <li>• reduce emissions to #20 ppmv (Option 7)</li> <li>• use the alternative standard (Option 8)</li> </ul>   |
|                        |   | the collective emissions from all vents not controlled by Option 7 or Option 8 | reduce HCl/Cl <sub>2</sub> emissions by \$94 percent (Option 9)  |
|                        | Group 1 for HCl/Cl <sub>2</sub> (>191 Mg/yr)                | any individual vent or any combination or vents                                | <ul style="list-style-type: none"> <li>• reduce emissions to #20 ppmv (Option 7)</li> <li>• use the alternative standard (Option 8)</li> </ul>   |
|                        |   | the collective emissions from all vents not controlled by Option 7 or Option 8 | reduce HCl/Cl <sub>2</sub> 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 <sub>2</sub> 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)]

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

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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<sub>2</sub> emissions - Existing Sources**

For uncontrolled HCl/Cl<sub>2</sub> 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<sub>2</sub> emissions to an outlet concentration of #20 ppmv

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

Reduce uncontrolled HCl/Cl<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> emissions - New Sources**

Your compliance options for your new uncontrolled HCl/Cl<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub>

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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<sub>2</sub> emissions to outlet concentrations of #20 ppmv

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

Reduce uncontrolled HCl/Cl<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> emissions by at least 94 weight percent

**If**, however, your uncontrolled HCl/Cl<sub>2</sub> 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<sub>2</sub> emissions to outlet concentrations of #20 ppmv

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

Reduce uncontrolled HCl/Cl<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> emissions by at least 99 weight percent

## 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 your 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

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*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.*

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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)].

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

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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<sub>2</sub> 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**.

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**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.

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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)

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

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

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*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)]

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**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.

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### **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... <sup>a</sup>   | At this frequency...  | According to these sections of the rule... |
|---|---|--|--|---|--|
| <b>Options 1, 2, 5-7, 9, and 10</b>   | <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)                           |
| <b>Options 1, 2, 5-7, 9, and 10</b><br>(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 <sup>b</sup> , 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                     | <ul style="list-style-type: none"> <li>• regeneration frequency (time since the end of the last regeneration), and</li> <li>• temperature to which the bed is heated during regeneration, and</li> <li>• temperature to which the bed is cooled, and</li> <li>• regeneration stream flow, and</li> </ul> | <ul style="list-style-type: none"> <li>• each regeneration cycle</li> <li>• each regeneration cycle</li> <li>• within 15 minutes of completing the cooling phase of each regeneration cycle</li> <li>• each regeneration cycle</li> </ul> | 63.1366(b)(1)(iv)                          |

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**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... <sup>a</sup>   | At this frequency...   | According to these sections of the rule... |
|--|---|--|--|--|--|
|  |   |  | <ul style="list-style-type: none"> <li>check for bed poisoning following manufacturer's specifications</li> </ul>  | <ul style="list-style-type: none"> <li>once per year</li> </ul>  |  |
|  |   | Nonregenerative carbon adsorber                              | <ul style="list-style-type: none"> <li>operating time since last replacement, or</li> <li>monitor TOC concentration in exhaust vent stream for breakthrough</li> </ul> | <ul style="list-style-type: none"> <li>n/a</li> <li>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</li> </ul> | 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)                              |
| <b>Option 3</b><br>(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... <sup>a</sup>  | At this frequency... | According to these sections of the rule... |
|--|---|--|---|----------------------|--|
| <b>Option 4 or 8</b><br>(e.g., alternative standard)         | All   | Any control device                               | outlet TOC concentration and/or outlet HCl/CL <sub>2</sub> concentration using CEM meeting PS 8 or 9 of Appendix B of Part 60 | every 15 minutes     | 63.1366(b)(5)                              |

<sup>a</sup> 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)].

<sup>b</sup> 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<sub>2</sub> 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.

## 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 <sup>a</sup> : | 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                   |

<sup>a</sup> Checklists 1 and 2 apply for all options.

**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 <sub>2</sub> emissions from all process vents in the process # 6.8 Mg/yr?  | G Yes      G No   |          |
|    |   |   |          |
| 2. | Is the HAP content of your emission stream < 20 ppmv?   | G Yes      G No   |          |
|    |   |   |          |
| 3. | Does your process vent discharge to any of the following control devices:   |   |          |
|    | <ul style="list-style-type: none"> <li>• a boiler or process heater burning hazardous waste for which you’ve:               <ul style="list-style-type: none"> <li>&lt; been issued a final permit under 40 CFR part 270 and are complying with requirements of 40 CFR part 266, subpart H; or</li> <li>&lt; certified compliance with the interim status requirements of 40 CFR part 266, subpart H?</li> </ul> </li> <li>• a hazardous waste incinerator for which you’ve:               <ul style="list-style-type: none"> <li>&lt; 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</li> <li>&lt; have certified compliance with the interim status requirements of 40 CFR part 265, subpart O?</li> </ul> </li> <li>• a boiler or process heater with a design heat input \$44 megawatts?</li> <li>• a boiler or process heater for which the emission stream is introduced with the primary fuel?</li> </ul> | G Yes      G No<br><br>G Yes      G No<br><br>G Yes      G No<br><br>G Yes      G No<br><br>G Yes      G No |          |

**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.

| <b>A. Monitoring Requirements</b> | <b>Comments</b> |
|-----------------------------------|-----------------|
|-----------------------------------|-----------------|

- |  |          |     |          |
|--|----------|-----|----------|
| 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:           |          |     |          |
| <ul style="list-style-type: none"> <li>• 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)</li> </ul> | <b>G</b> | Yes | <b>G</b> |
| <ul style="list-style-type: none"> <li>• secured the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration? §63.1362(j)(2)</li> </ul>    | <b>G</b> | Yes | <b>G</b> |
|  |          |     | <b>G</b> |
|  |          |     | <b>G</b> |

*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) |          |     |          |
|  | <b>G</b> | Yes | <b>G</b> |
|  |          |     | <b>G</b> |
|  |          |     | <b>G</b> |

| <b>B. Recordkeeping and Reporting Requirements</b> | <b>Comments</b> |
|--|-----------------|
|--|-----------------|

- |  |          |     |          |
|--|----------|-----|----------|
| 1. If you use a flow indicator to monitor your closed-vent system bypass line, do you have <b>all</b> of the following records: §63.1367(f)(1) |          |     |          |
| <ul style="list-style-type: none"> <li>• hourly flow indicator readings?</li> </ul>  | <b>G</b> | Yes | <b>G</b> |
| <ul style="list-style-type: none"> <li>• times and durations of periods when the flow indicator is not operating?</li> </ul>                   | <b>G</b> | Yes | <b>G</b> |
| <ul style="list-style-type: none"> <li>• times and durations of periods when the vent stream is diverted from the control device?</li> </ul>   | <b>G</b> | Yes | <b>G</b> |
|  |          |     | <b>G</b> |
|  |          |     | <b>G</b> |

**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 <b>all</b> of the following records: §63.1367(f)(2) <ul style="list-style-type: none"> <li>• records that the monthly visual inspections of the seal or closure mechanism have been done? <b>G Yes</b> <b>G No</b></li> <li>• 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? <b>G Yes</b> <b>G No</b></li> <li>• records of any car-seal that has broken? <b>G Yes</b> <b>G No</b></li> </ul> |                          |
| 3. Are records retained for at least 5 years? §63.1367(a)(1)  | <b>G Yes</b> <b>G No</b> |
| 4. Did you submit <b>all</b> of the following in your Periodic Report: §63.1368(g)(2)(iii) <ul style="list-style-type: none"> <li>• records of all periods when the vent stream is diverted from the control device? <b>G Yes</b> <b>G No</b></li> <li>• 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? <b>G Yes</b> <b>G No</b></li> </ul>   |                          |

**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.

| <b>A. Monitoring Requirements §63.1366(b)(1)(ii) and (2)</b>  | <b>Comments</b> |             |
|---|-----------------|-------------|
| 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?               | <b>G Yes</b>    | <b>G No</b> |
| 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? | <b>G Yes</b>    | <b>G No</b> |
| 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?    | <b>G Yes</b>    | <b>G No</b> |
| 4. Is the monitoring device calibrated annually?  | <b>G Yes</b>    | <b>G No</b> |
| 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?  | <b>G Yes</b>    | <b>G No</b> |
| 6. Do you average the continuous readings over the operating day or operating block?  | <b>G Yes</b>    | <b>G No</b> |
| 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?                     | <b>G Yes</b>    | <b>G No</b> |
| <b>B. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b> |             |
| 1. Did you submit <b>all</b> of the following in your Notification of Compliance Status Report:   |                 |             |
| • results of the initial performance test or design evaluation? §63.1368(f)(2)  | <b>G Yes</b>    | <b>G No</b> |
| • documentation to establish a minimum scrubber liquid flow rate or pressure drop as a site-specific operating parameter? §63.1368(f)(3)  | <b>G Yes</b>    | <b>G No</b> |
| 2. Do you keep daily (or more frequent) records of the pH of the scrubber effluent if necessary? §63.1367(b)(1)   | <b>G Yes</b>    | <b>G No</b> |
| 3. Do you keep continuous records of the scrubber inlet flow rate or pressure drop? §63.1367(b)(1)  | <b>G Yes</b>    | <b>G No</b> |

**Checklist 3: (cont'd)**

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

| <b>B. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b> |             |
|---|-----------------|-------------|
| 4. Do you submit <b>all</b> of the following in your Periodic Reports if exceedances or excursions are \$1 percent of the total operating time during the reporting period:<br>§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?    | <b>G</b> Yes    | <b>G</b> 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?            | <b>G</b> Yes    | <b>G</b> No |
| • identification of all operating days when insufficient monitoring data are collected?   | <b>G</b> Yes    | <b>G</b> No |
| -----   |                 |             |
| 5. Do you maintain records for 5 years? §63.1367(a)(1)  | <b>G</b> Yes    | <b>G</b> No |

**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.

| <b>A Monitoring Requirements §63.1366(b)(1)(iii) and (2)</b>  | <b>Comments</b> |             |
|---|-----------------|-------------|
| 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?  | <b>G Yes</b>    | <b>G No</b> |
| 2. Is the temperature monitoring device accurate to within ± 2 percent of the temperature measured in degrees Celsius or ± 2.5EC, whichever is greater?   | <b>G Yes</b>    | <b>G No</b> |
| 3. Is the temperature monitoring device calibrated annually?  | <b>G Yes</b>    | <b>G No</b> |
| 4. Do you average the temperature readings over the operating day or operating block?   | <b>G Yes</b>    | <b>G No</b> |
| 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?   | <b>G Yes</b>    | <b>G No</b> |
| <b>B. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b> |             |
| 1. Did you submit <b>all</b> of the following in your Notification of Compliance Status Report: <ul style="list-style-type: none"> <li>• results of the calculations to demonstrate initial compliance? §63.1368(f)(2) <span style="float: right;"><b>G Yes</b>   <b>G No</b></span></li> <li>• documentation to establish the maximum condenser outlet gas temperature as a site-specific operating parameter? §63.1368(f)(3) <span style="float: right;"><b>G Yes</b>   <b>G No</b></span></li> </ul>   |                 |             |
| 2. Do you keep continuous records of the condenser outlet temperature? §63.1367(b)(1) <span style="float: right;"><b>G Yes</b>   <b>G No</b></span>   |                 |             |
| 3. Do you submit <b>all</b> 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) <ul style="list-style-type: none"> <li>• 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? <span style="float: right;"><b>G Yes</b>   <b>G No</b></span></li> <li>• identification of all operating days when insufficient monitoring data are collected? <span style="float: right;"><b>G Yes</b>   <b>G No</b></span></li> </ul> |                 |             |
| 4. Do you maintain records for 5 years? §63.1367(a)(1) <span style="float: right;"><b>G Yes</b>   <b>G No</b></span>  |                 |             |

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**Checklist 4: *(cont'd)***

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

**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 <b>all</b> of the following: <ul style="list-style-type: none"> <li>• operating time since last regeneration? <span style="float: right;">G Yes    G No</span></li> <li>• temperature to which the bed is heated during regeneration? <span style="float: right;">G Yes    G No</span></li> <li>• temperature to which the bed is cooled, measured within 15 minutes of completing the cooling phase? <span style="float: right;">G Yes    G No</span></li> <li>• regeneration stream flow? <span style="float: right;">G Yes    G No</span></li> </ul> |          |
| 2. Is the temperature monitoring device accurate to within ± 2 percent of the temperature measured in degrees Celsius or ± 2.5EC, whichever is greater? <span style="float: right;">G Yes    G No</span>   |          |
| 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)? <span style="float: right;">G Yes    G No</span>  |          |
| 4. Are the temperature and flow monitoring devices calibrated annually? <span style="float: right;">G Yes    G No</span>   |          |
| 5. Do you conduct an annual check for bed poisoning in accordance with manufacturer’s specifications? <span style="float: right;">G Yes    G No</span>   |          |
| B. Recordkeeping and Reporting Requirements  | Comments |
| 1. Did you submit <b>all</b> of the following in your Notification of Compliance Status Report: <ul style="list-style-type: none"> <li>• results of the initial performance test or design evaluation? <span style="float: right;">G Yes    G No</span><br/> <i>§63.1368(f)(2)</i></li> <li>• documentation to establish the regeneration stream flow, the minimum carbon bed regeneration temperature, and the maximum cooling phase temperature as site-specific operating parameters? <span style="float: right;">G Yes    G No</span><br/> <i>§63.1368(f)(3)</i></li> </ul>                        |          |
| 2. Do you keep records of the total regeneration stream mass or volumetric flow for each carbon bed regeneration cycle? <span style="float: right;">G Yes    G No</span><br><i>§63.1367(b)(1)</i>  |          |

**Checklist 5: (cont'd)**

**Requirements for regenerative carbon adsorbers (All options except 3, 4, and 8)**

| <b>B. Recordkeeping and Reporting Requirements</b> |  | <b>Comments</b> |      |
|--|--|-----------------|------|
| 3.   | Do you keep records of the temperature to which the carbon bed is heated during each carbon bed regeneration? §63.1367(b)(1)   | G Yes           | G 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)  | G Yes           | G No |
| 5.   | Do you keep records of the operating time between regeneration? §63.1367(b)(1)   | G Yes           | G No |
| 6.   | Do you identify <b>all</b> 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?                                | G Yes           | G 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? | G Yes           | G 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? | G Yes           | G No |
|  | • all instances when the operating time between regeneration exceeds the time interval established during your initial compliance demonstration?   | G Yes           | G No |
| 7.   | Do you maintain records for 5 years? §63.1367(a)(1)  | G Yes           | G No |

**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.

| <b>A. Monitoring Requirements §63.1366(b)(1)(v) and (2)</b>   | <b>Comments</b> |             |
|---|-----------------|-------------|
| 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?   | <b>G Yes</b>    | <b>G No</b> |
| • time interval established in your NOCS?   | <b>G Yes</b>    | <b>G No</b> |
| 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?  | <b>G Yes</b>    | <b>G No</b> |
| <b>B. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b> |             |
| 1. Did you submit the results of the initial design evaluation in your Notification of Compliance Status Report? §63.1368(f)(2)   | <b>G Yes</b>    | <b>G No</b> |
| 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) | <b>G Yes</b>    | <b>G No</b> |
| 3. If you monitor the outlet TOC concentration, do you maintain records of readings? §63.1367(b)(1)   | <b>G Yes</b>    | <b>G No</b> |
| 4. Do you maintain records for 5 years? §63.1367(a)(1)  | <b>G Yes</b>    | <b>G No</b> |

**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.

| <b>A. Monitoring Requirements §63.1366(b)(1)(vii) and (2)</b>   |              |             | <b>Comments</b> |
|---|--------------|-------------|-----------------|
| 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?                      | <b>G Yes</b> | <b>G No</b> |                 |
| 2. Is the temperature monitoring device accurate to within ± 0.75 percent of the temperature measured in degrees Celsius or ± 2.5EC, whichever is greater?                                      | <b>G Yes</b> | <b>G No</b> |                 |
| 3. Is the temperature monitoring device calibrated annually?  | <b>G Yes</b> | <b>G No</b> |                 |
| 4. Do you average the temperature readings over the operating day or operating block?   | <b>G Yes</b> | <b>G No</b> |                 |
| 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? | <b>G Yes</b> | <b>G No</b> |                 |
| <b>B. Recordkeeping and Reporting Requirements</b>  |              |             | <b>Comments</b> |
| 1. Did you submit <b>all</b> of the following in your Notification of Compliance Status Report:   |              |             |                 |
| • results of the initial performance test or design evaluation? §63.1368(f)(2)  | <b>G Yes</b> | <b>G No</b> |                 |
| • documentation to establish the minimum outlet gas temperature as a site-specific operating parameter? §63.1368(f)(3)  | <b>G Yes</b> | <b>G No</b> |                 |
| 2. Do you keep continuous records of the outlet temperature? §63.1367(b)(1)   | <b>G Yes</b> | <b>G No</b> |                 |
| 3. Do you submit <b>all</b> 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?                   | <b>G Yes</b> | <b>G No</b> |                 |
| • identification of all operating days or blocks when insufficient monitoring data are collected?   | <b>G Yes</b> | <b>G No</b> |                 |

**Checklist 7: (cont'd)**

**Requirements for thermal incinerators (All options except options 3, 4, and 8)**

| <b>B. Recordkeeping and Reporting Requirements</b>     | <b>Comments</b>          |
|--|--------------------------|
| 4. Do you maintain records for 5 years? §63.1367(a)(1) | <b>G</b> Yes <b>G</b> No |

**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.

| <b>A. Monitoring Requirements §63.1366(b)(1)(viii) and (2)</b>  |              |             | <b>Comments</b> |
|---|--------------|-------------|-----------------|
| 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 from an emission stream? | <b>G Yes</b> | <b>G No</b> |                 |
| 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 from an emission stream?                            | <b>G Yes</b> | <b>G No</b> |                 |
| 3. Is the temperature monitoring device accurate to within $\pm 0.75$ percent of the temperature measured in degrees Celsius or $\pm 2.5$ EC, whichever is greater?   | <b>G Yes</b> | <b>G No</b> |                 |
| 4. Is the temperature monitoring device calibrated annually?  | <b>G Yes</b> | <b>G No</b> |                 |
| 5. Do you average the temperature readings over the operating day or operating block?   | <b>G Yes</b> | <b>G No</b> |                 |
| 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?                               | <b>G Yes</b> | <b>G No</b> |                 |
| <b>B. Recordkeeping and Reporting Requirements</b>  |              |             | <b>Comments</b> |
| 1. Did you submit <b>all</b> of the following in your Notification of Compliance Status Report:   |              |             |                 |
| • results of the initial performance test or design evaluation? §63.1368(f)(2)  | <b>G Yes</b> | <b>G No</b> |                 |
| • 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)   | <b>G Yes</b> | <b>G No</b> |                 |
| 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)  | <b>G Yes</b> | <b>G No</b> |                 |

**Checklist 8: (cont'd)**

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

| <b>B. Recordkeeping and Reporting Requirements</b>   | <b>Comments</b> |
|--|-----------------|
| 3. Do you submit <b>all</b> 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) <ul style="list-style-type: none"><li>• 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? <b>G Yes</b> <b>G No</b></li><li>• identification of all operating days or blocks when insufficient monitoring data are collected? <b>G Yes</b> <b>G No</b></li></ul> |                 |
| 4. Do you maintain records for 5 years? §63.1367(a)(1) <b>G Yes</b> <b>G No</b>  |                 |

**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.

| <b>A. Monitoring Requirements §63.1366(b)(1)(ix) and (2)</b>  |              |             | <b>Comments</b> |
|---|--------------|-------------|-----------------|
| 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? | <b>G Yes</b> | <b>G No</b> |                 |
| 2. Is the temperature monitoring device accurate to within ± 0.75 percent of the temperature measured in degrees Celsius or ± 2.5EC, whichever is greater?  | <b>G Yes</b> | <b>G No</b> |                 |
| 3. Is the temperature monitoring device calibrated annually?  | <b>G Yes</b> | <b>G No</b> |                 |
| 4. Do you average the temperature readings over the operating day or operating block?   | <b>G Yes</b> | <b>G No</b> |                 |
| 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?   | <b>G Yes</b> | <b>G No</b> |                 |
| <b>B. Recordkeeping and Reporting Requirements</b>  |              |             | <b>Comments</b> |
| 1. Did you submit <b>all</b> of the following in your Notification of Compliance Status Report:   |              |             |                 |
| • results of the initial performance test or design evaluation? §63.1368(f)(2)  | <b>G Yes</b> | <b>G No</b> |                 |
| • documentation to establish the minimum combustion zone temperature? §63.1368(f)(3)  | <b>G Yes</b> | <b>G No</b> |                 |
| 2. Do you have continuous records of the combustion zone temperature? §63.1367(b)(1)  | <b>G Yes</b> | <b>G No</b> |                 |
| 3. Do you submit <b>all</b> 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?                      | <b>G Yes</b> | <b>G No</b> |                 |
| • identification of all operating days or blocks when insufficient monitoring data are collected?   | <b>G Yes</b> | <b>G No</b> |                 |
| 4. Do you maintain records for 5 years? §63.1367(a)(1)  | <b>G Yes</b> | <b>G No</b> |                 |

**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.

| <b>1. Monitoring Requirements §63.1366(b)(1)(vi) and (2)</b>   |                          | <b>Comments</b> |
|--|--------------------------|-----------------|
| 1. Do you monitor for the presence of the flare pilot flame at least once every 15 minutes?  | <b>G</b> Yes <b>G</b> No |                 |
| 2. Is the monitoring device calibrated annually?   | <b>G</b> Yes <b>G</b> No |                 |
| <b>B. Recordkeeping and Reporting Requirements</b>   |                          | <b>Comments</b> |
| 1. Did you submit <b>all</b> of the following in your Notification of Compliance Status Report:  |                          |                 |
| • results of the initial visible emissions test? §63.1368(f)(2)  | <b>G</b> Yes <b>G</b> No |                 |
| • the net heating value of gas being combusted and its exit velocity? §63.1368(f)(3)   | <b>G</b> Yes <b>G</b> No |                 |
| 2. Do you maintain records of the continuously monitored data? §63.1367(b)(1)  | <b>G</b> Yes <b>G</b> No |                 |
| 3. Do you identify <b>all</b> 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?   | <b>G</b> Yes <b>G</b> No |                 |
| • all periods when the monitor was not working?  | <b>G</b> Yes <b>G</b> No |                 |
| 4. Do you maintain records for 5 years? §63.1367(a)(1)   | <b>G</b> Yes <b>G</b> No |                 |

**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.

| <b>A. Monitoring Requirements §63.1366(b)(2) and (5)</b> |   | <b>Comments</b> |             |
|--|---|-----------------|-------------|
| 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? | <b>G Yes</b>    | <b>G No</b> |
| 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?  | <b>G Yes</b>    | <b>G No</b> |
| 3.   | Is the monitoring device calibrated at a minimum with quarterly cylinder gas audits?  | <b>G Yes</b>    | <b>G No</b> |
| 4.   | If supplemental gases are introduced before the control device, is the monitored concentration corrected?   | <b>G Yes</b>    | <b>G No</b> |
| 5.   | Is the CEMS data reduced to operating day or operating block averages?  | <b>G Yes</b>    | <b>G No</b> |
| 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?   | <b>G Yes</b>    | <b>G No</b> |
| <b>B. Recordkeeping and Reporting Requirements</b>       |   | <b>Comments</b> |             |
| 1.   | Do your records show that you calibrate your monitor in accordance with your quality control program?<br>§§63.1366(b)(3) and 63.8(d)  | <b>G Yes</b>    | <b>G No</b> |
| 2.   | Have your recorded all maintenance and calibration checks performed on the CEMS? §63.1367(b)(3)   | <b>G Yes</b>    | <b>G No</b> |

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

| <b>B. Recordkeeping and Reporting Requirements</b>   | <b>Comments</b> |      |
|--|-----------------|------|
| 3. Do you have <b>all</b> of the following records: §63.1367(a)(4) <ul style="list-style-type: none"> <li>• all required CEMS measurements (including monitoring data recorded during unavoidable CEMS breakdowns and out-of-control periods)?</li> <li>• the date and time of each period when the CEMS is inoperative except for zero (low-level) and high-level checks?</li> <li>• 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)?</li> <li>• 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?</li> <li>• the nature and cause of any malfunction of your monitor (if known), and corrective actions taken?</li> <li>• the total process operating time during the reporting period?</li> <li>• all procedures, including calibrations, that are part of your quality control program?</li> </ul> | G Yes           | G 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)  | G Yes           | G No |
| 5. Do you submit <b>all</b> 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) <ul style="list-style-type: none"> <li>• all monitoring data for all operating days or operating blocks when the average TOC or HCl/Cl<sub>2</sub> concentrations exceed 20 ppmv?</li> <li>• identification of all operating days when insufficient monitoring data are collected?</li> </ul>   | G Yes           | G No |
| 6. Do you maintain records for 5 years? §63.1367(a)(1)   | G Yes           | G No |

**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.

| <b>A. Monitoring Requirements §63.1366(b)(1)(i) and (2)</b> |  | <b>Comments</b> |             |
|---|--|-----------------|-------------|
| 1.  | Do you periodically verify that the control device is operating properly by following the procedures specified in your approved Precompliance Plan?  | <b>G Yes</b>    | <b>G No</b> |
| 2.  | If the verification procedure includes monitoring a parameter more than one time per day, do you average the daily readings?   | <b>G Yes</b>    | <b>G No</b> |
| 3.  | Do you calibrate any monitoring instruments according to procedures in your approved Precompliance Plan?   | <b>G Yes</b>    | <b>G No</b> |
| 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?             | <b>G Yes</b>    | <b>G No</b> |
| <b>B. Recordkeeping and Reporting Requirements</b>          |  | <b>Comments</b> |             |
| 1.  | Did you submit a description of your daily or per batch verification procedures in your Precompliance Plan? §63.1368(e)  | <b>G Yes</b>    | <b>G No</b> |
| 2.  | Do you submit <b>all</b> of the following in your Periodic Reports if the exceedances or excursions are \$1 percent of the total operating time during the reporting period:<br>§63.1368(g)(2) |                 |             |
|   | • all monitoring data for all operating days or blocks when the data show the control device is <b>not</b> operating as designed?  | <b>G Yes</b>    | <b>G No</b> |
|   | • identification of all operating days or blocks when insufficient monitoring data are collected?  | <b>G Yes</b>    | <b>G No</b> |
| 3.  | Do you maintain records for 5 years? §63.1367(a)(1)  | <b>G Yes</b>    | <b>G No</b> |



## Chapter 4 - Complying with requirements for storage vessels

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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

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**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.

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

## 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 <b>maximum true vapor pressure</b> of... |
|-------------------------------|--------------------------|---|
| an existing source            | \$ 75 m <sup>3</sup>     | \$ 3.45 kPa   |
| a new source                  | \$ 40 m <sup>3</sup>     | \$ 16.5 kPa   |
|                               | \$ 75 m <sup>3</sup>     | \$ 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:

- C the storage vessel begins receiving material from (or sending material to) another process unit
- C the storage vessel ceases to receive material from (or send material to) a PAI process unit
- C 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)

**(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

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

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**(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<sub>2</sub>

*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<sup>a</sup>**

| 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...  |
|---|--|---|--|
| <b>Option 1, 2, or 3</b><br><br>(Please note that you have more requirements for these options further in this table) | the floating roof itself   | be supported by leg supports <b>only</b> under the following conditions: <ul style="list-style-type: none"> <li>• during initial fill</li> <li>• after the vessel has been completely emptied and degassed</li> <li>• before refilling</li> </ul> | be floating on the liquid surface except when being supported by the leg supports is allowed<br><br>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: <ul style="list-style-type: none"> <li>• when the roof is being floated off the roof leg supports</li> <li>• when the pressure beneath the rim seal exceeds manufacturer's specifications</li> </ul> |
|   | access hatches and gauge floats  | have a gasketed cover   | be closed at all times except for access   |
|   | <b>Option 1</b>  | 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  |
|   | 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 <b>either</b> of the following: <ul style="list-style-type: none"> <li>• a flexible fabric sleeve seal</li> <li>• a gasketed sliding cover</li> </ul>   |   |
| <b>Option 2</b>              | closure device between the vessel wall and roof edge     | have <b>all</b> of the following: <ul style="list-style-type: none"> <li>• there must be two seals</li> <li>• the primary seal must be a metallic shoe or liquid-mounted seal</li> <li>• both seals must completely cover the space between the EFR and the vessel wall</li> </ul> |   |
| <b>Option 1 or 3</b>         | closure device between the vessel wall and the roof edge | <b>any</b> one of the following: <ul style="list-style-type: none"> <li>• a liquid-mounted seal</li> <li>• a metallic shoe seal</li> <li>• a double seal</li> </ul>  |   |

**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...   |  |
|------------------------------|--|---|---|--|
| <b>Option 2 or 3</b>         | openings in the roof except for the following:   | be equipped with a gasketed cover or lid        | both of the following:<br><ul style="list-style-type: none"> <li>• keep the cover or lid closed except for access</li> <li>• cover on each access hatch and each gauge float well must be bolted or fastened to be air tight when closed</li> </ul> |  |
|                              | <ul style="list-style-type: none"> <li>• automatic bleeder vents</li> <li>• rim space vents</li> <li>• roof drains</li> <li>• leg sleeves</li> </ul> |   |   |  |
|                              | 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 <b>either</b> of the following: <ul style="list-style-type: none"> <li>• a gasketed sliding cover</li> <li>• a flexible fabric sleeve seal</li> </ul> |
|                              | unslotted guide poles  |   |   | have a gasketed cap on the end of the pole   |
| 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

<sup>a</sup> 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)]

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

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#### **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)].

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

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### **(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<sub>2</sub> 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...  |
|-------------------------------|---|--|
| <b>Option 1, 2 or 3</b>       | various inspections and measurements  | typically annually and every time the storage vessel is emptied and degassed |
| <b>Option 4 (A or B)</b>      | monitor one or more control device operating parameters such as temperature and flow rate | every 15 minutes   |
| <b>Option 4 (C)</b>           | monitor presence of pilot flame   | every 15 minutes   |
| <b>Option 4 (E)</b>           | monitor outlet TOC and, if appropriate, HCl/Cl <sub>2</sub> 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... |
|--------------------------------------|--|---|--|--|
| <b>Double-seal system (Option A)</b> | IFR, the primary and secondary seal, gaskets, slotted membranes, and sleeve seals (if any) | each time the vessel is emptied and degassed,<br><b>and</b> at least once every 5 years after the compliance date | <ul style="list-style-type: none"> <li>defects in the IFR</li> <li>holes, tears, or other openings in the seal or seal fabric</li> <li>gaskets that no longer close off the liquid surface to the atmosphere</li> <li>slotted membranes with more than 10 percent open area</li> </ul> | §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... |
|--------------------------------------|--|--|--|--|
| <b>Double-seal system (option B)</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   | <ul style="list-style-type: none"> <li>IFRs that aren't resting on the surface of the liquid or the leg supports</li> <li>liquid on the IFR</li> <li>detached seal</li> <li>holes or tears in the seal fabric</li> <li>visible gaps between the seal and the wall of the storage vessel</li> </ul> | §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) | <ul style="list-style-type: none"> <li>defects in the IFR</li> <li>holes, tears, or other openings in the seal or seal fabric</li> <li>gaskets that no longer close off the liquid surface to the atmosphere</li> <li>slotted membranes with more than 10 percent open area</li> </ul>             | §63.120(a)(3)(iii) and (a)(7)              |
| <b>a single-seal system</b>          | 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   | <ul style="list-style-type: none"> <li>IFRs that aren't resting on the surface of the liquid or the leg supports</li> <li>liquid on the IFR</li> <li>detached seal</li> <li>holes or tears in the seal fabric</li> <li>visible gaps between the seal and the wall of the storage vessel</li> </ul> | §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 | <ul style="list-style-type: none"> <li>defects in the IFR</li> <li>holes, tears, or other openings in the seal or seal fabric</li> <li>gaskets that no longer close off the liquid surface to the atmosphere</li> <li>slotted membranes with more than 10 percent open area</li> </ul> | §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 ... <sup>a</sup>   | According to this section of the rule... |
|---|---|--|--|
| <b>All EFRs</b>                             | visually inspect the roof, seals, and fittings                  | each time the vessel is emptied and degassed   | §63.120(b)(10)                           |
| <b>EFR with primary and secondary seals</b> | measure <sup>b</sup> 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 <sup>b</sup> 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 ... <sup>a</sup> | According to this section of the rule... |
|--|---|------------------------------------|--|
| <b>EFR with liquid-mounted or metallic shoe primary seal and no secondary seal<sup>c</sup></b> | measure <sup>b</sup> 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)                         |

<sup>a</sup> All measurements and inspections that must be performed annually or every 5 years must also be performed before the compliance date.

<sup>b</sup> Seal gap measurements are made according to the method described in §63.120(b)(2) through (b)(4) of subpart G.

<sup>c</sup> 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 ...   |
|---|---|--|
| <b>visual inspection of the roof, seals, and fittings after emptying and degassing the storage vessel</b> | <ul style="list-style-type: none"> <li>the external floating roof has defects</li> <li>the primary or secondary seal has holes, tears, or other openings in the seal or seal fabric</li> <li>gaskets no longer close off the liquid surface from the atmosphere</li> <li>the slotted membrane has more than 10 percent open area</li> </ul> | before refilling the storage vessel with organic HAP [§63.120(b)(10)(i)] |

| When you're performing ...  | And you find that...   | Then, repair the condition ...  |
|---|--|---|
| <b>seal gap measurement and visual inspection for all primary seals</b>   | <ul style="list-style-type: none"> <li>the total area of gaps between the vessel wall and primary seal exceeds 212 cm<sup>2</sup>/meter of vessel diameter</li> <li>there are gaps between the vessel wall and primary seal wider than 3.81 cm</li> <li>there are holes in the mechanical shoe (if used), seal fabric, or seal envelope</li> </ul>   | within 45 days from the measurement or inspection (unless you get an extension) [§63.120(b)(8)] |
| <b>additional measurement for metallic shoe primary seals</b>             | 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)] |
| <b>seal gap measurement and visual inspection for all secondary seals</b> | <ul style="list-style-type: none"> <li>the total area of gaps between the vessel wall and secondary seal exceeds 21.2 cm<sup>2</sup>/meter of vessel diameter</li> <li>there are gaps between the vessel wall and secondary seal wider than 1.27 cm</li> <li>the secondary seal does not completely cover the space between the roof edge and the space between the vessel wall</li> <li>there are holes, tears, or other openings in the secondary seal or seal fabric</li> </ul> | 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<sub>2</sub> 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<sub>2</sub> concentration if you know that the control device does not generate HCl/Cl<sub>2</sub> [§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... |
|------------------------------|---|---|---|
| <b>Option 1, 2 or 3</b>      | refill your storage vessels after visual inspection of the roof, seals, and fittings each time the vessel is emptied and degassed | 30 days <sup>a</sup> 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... |
|---|---|---|
| <b>Notification of Compliance Status report</b> | anticipated periods of planned routine maintenance  | §63.1368(f)(7)                                    |
| <b>Periodic reports</b>                         | actual periods of planned routine maintenance during the reporting period<br><br><b>and</b><br>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.*

## 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 <sup>a</sup> ... | Starting on page ... |
|-------------------------|---|--|----------------------|
| <b>Option 1</b>         | a fixed roof and an internal floating roof  | 2  |                      |
| <b>Option 2</b>         | an external floating roof   | 3  |                      |
| <b>Option 3</b>         | an external floating roof converted to an internal floating roof  | 4  |                      |
| <b>Option 4(A or B)</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   |                      |
| <b>Option 4(C)</b>      | a flare   | Chapter 3, checklist 10                            |                      |
| <b>Option 4(E)</b>      | emissions routed to a control device to meet the alternative standard   | 5  |                      |

<sup>a</sup> Checklist 1 applies for all options.

**Checklist 1: Applicability (All Options)**

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**Facility Name:** \_\_\_\_\_  
**Facility Location:** \_\_\_\_\_  
**Facility TRI ID #:** \_\_\_\_\_  
**Inspector:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

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**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  | G Yes      G No |          |
| <hr style="border-top: 1px dashed black;"/> |   |                 |          |
| 2.  | Is your storage vessel part of a PAI process unit? §63.1360(f)  | G Yes      G No |          |
| <hr style="border-top: 1px dashed black;"/> |   |                 |          |
| 3.  | Did you designate the storage vessel as a Group 1 vessel, or did you determine that the vessel meets Group 1 criteria? §63.1362(c)(1) | G Yes      G 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? **G Yes** **G 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? **G Yes** **G 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? **G Yes** **G 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? **G Yes** **G No**

---

3. Does the floating roof float on the liquid surface? §63.120(a)(4) and (7) **G Yes** **G 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.*

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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) **G Yes** **G No**

**Checklist 2: (cont'd)**

**Requirements for a storage vessel with an internal floating roof (Option 1)**

| <b>A. Monitoring and Inspection Requirements</b> §63.120(a) as cross-referenced from §63.1365(d)(3)   |              | <b>Comments</b> |  |
|---|--------------|-----------------|--|
| 5. Inspect the seal(s) §63.120(a)(4) and (7)  |              |                 |  |
| • Is the seal attached to the IFR?  | <b>G Yes</b> | <b>G No</b>     |  |
| • Is the seal or seal fabric free of holes, tears, or other openings?   | <b>G Yes</b> | <b>G No</b>     |  |
| • Does the seal make continuous contact with the wall of the storage vessel (i.e., no visible gaps between the seal and wall)?  | <b>G Yes</b> | <b>G No</b>     |  |
| -----   |              |                 |  |
| 6. Is the IFR equipped with a liquid-mounted seal, metallic shoe seal, or a double seal? §63.119(b)(3)  | <b>G Yes</b> | <b>G No</b>     |  |
| -----   |              |                 |  |
| 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)                            | <b>G Yes</b> | <b>G No</b>     |  |
| • 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) | <b>G Yes</b> | <b>G No</b>     |  |
| • Is each cover on an IFR opening closed (unless open for access)? §63.119(a)(6)  | <b>G Yes</b> | <b>G No</b>     |  |
| • Are covers on each access hatch and automatic gauge float fastened air-tight when closed? §63.119(a)(6)   | <b>G Yes</b> | <b>G No</b>     |  |
| • Do gaskets on IFR opening covers close off the liquid surface from the atmosphere? §63.120(a)(7)  | <b>G Yes</b> | <b>G No</b>     |  |
| -----   |              |                 |  |
| 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)   | <b>G Yes</b> | <b>G No</b>     |  |
| • Are the automatic bleeder vents gasketed? §63.119(a)(5)(iv)   | <b>G Yes</b> | <b>G No</b>     |  |
| • Do the gaskets close off the liquid surface from the atmosphere? §63.120(a)(7)  | <b>G Yes</b> | <b>G No</b>     |  |
| -----   |              |                 |  |

**Checklist 2: (cont'd)**

**Requirements for a storage vessel with an internal floating roof (Option 1)**

| <b>A. Monitoring and Inspection Requirements</b> §63.120(a) as cross-referenced from §63.1365(d)(3)                                 |  | <b>Comments</b> |  |
|---|--|-----------------|--|
| 9.  | Inspect rim space vents <ul style="list-style-type: none"> <li>• Are the rim space vents closed except when either: §63.119(a)(6)               <ul style="list-style-type: none"> <li>&lt; the roof is being floated off the roof leg supports ? <b>G Yes</b> <b>G No</b></li> <li>&lt; the pressure beneath the rim seal exceeds the manufacturer's recommended setting? <b>G Yes</b> <b>G No</b></li> </ul> </li> <li>• Are the rim space vents gasketed? §63.119(a)(5)(v) <b>G Yes</b> <b>G No</b></li> <li>• Do the gaskets close off the liquid surface from the atmosphere? §63.120(a)(7) <b>G Yes</b> <b>G No</b></li> </ul> |                 |  |
| 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) <b>G Yes</b> <b>G No</b>  |                 |  |
| 11.   | Does each ladder well have a gasketed sliding cover? §63.119(a)(5)(vi) <b>G Yes</b> <b>G No</b>  |                 |  |
| 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) <b>G Yes</b> <b>G No</b>   |                 |  |
| 13.   | Do ladder and column well gaskets close off the liquid surface to the atmosphere? §63.120(a)(7) <b>G Yes</b> <b>G No</b>   |                 |  |
| 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) <b>G Yes</b> <b>G No</b>  |                 |  |
| 15.   | If repairs were needed, did you complete them before refilling the storage vessel? <b>G Yes</b> <b>G No</b>  |                 |  |
| <b>B. Recordkeeping and Reporting Requirements</b> §§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??) |  | <b>Comments</b> |  |
| <b>Note:</b> There are reporting and recordkeeping requirements for visual inspections.   |  |                 |  |
| 1.  | Did you record the occurrence of each visual inspection? §63.123(c) <b>G Yes</b> <b>G No</b>   |                 |  |
| 2.  | Do you maintain all records for 5 years? §63.1367(a)(1) <b>G Yes</b> <b>G No</b>   |                 |  |

**Checklist 2: (cont'd)**

**Requirements for a storage vessel with an internal floating roof (Option 1)**

| <b>B. Recordkeeping and Reporting Requirements §§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??)</b> |   | <b>Comments</b>          |
|---|---|--------------------------|
| 3.  | <p>If you detected a failure during an inspection, did you submit all of the following information in your periodic report:<br/>§63.122(d)(1)(ii)</p> <ul style="list-style-type: none"> <li>• date of the inspection? <b>G Yes</b> <b>G No</b></li> <li>• identification of all storage vessels with failures? <b>G Yes</b> <b>G No</b></li> <li>• description of the failures? <b>G Yes</b> <b>G No</b></li> <li>• either the date and nature of repairs made or the date the vessel was emptied (if the vessel was not already empty)? <b>G Yes</b> <b>G No</b></li> </ul>   |                          |
| 4.  | <p>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:<br/>§63.122(d)(1)(iii)</p> <ul style="list-style-type: none"> <li>• identification of the storage vessel? <b>G Yes</b> <b>G No</b></li> <li>• description of the failure? <b>G Yes</b> <b>G No</b></li> <li>• documentation that alternate storage capacity was unavailable? <b>G Yes</b> <b>G No</b></li> <li>• schedule of actions taken to make repairs or empty the vessel as soon as possible? <b>G Yes</b> <b>G No</b></li> <li>• date the storage vessel was emptied and nature of and date repair was made? <b>G Yes</b> <b>G No</b></li> </ul> |                          |
| 5.  | <p>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)</p>   | <b>G Yes</b> <b>G No</b> |

**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)   | <b>G</b> Yes | <b>G</b> 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)   | <b>G</b> Yes | <b>G</b> No |  |
| <i>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.</i>   |              |             |  |
| -----  |              |             |  |
| 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)  | <b>G</b> Yes | <b>G</b> 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 (C inch) diameter uniform probe passes freely between the wall and the seal? §63.120(b)(2)(ii)  | <b>G</b> Yes | <b>G</b> 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)  | <b>G</b> Yes | <b>G</b> 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?   | <b>G</b> Yes | <b>G</b> No |  |
| or   |              |             |  |
| • Do you remove the vessel from service within 45 days after the determination?  | <b>G</b> Yes | <b>G</b> No |  |
| <i>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.</i> |              |             |  |
| -----  |              |             |  |

**Checklist 3: (cont'd)**

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

| <b>A. Monitoring and Inspection Requirements §63.120(b) as cross-referenced from §63.1365(d)(3)</b> |   |              |             | <b>Comments</b> |
|---|---|--------------|-------------|-----------------|
| 7.  | Do you repair the seals no later than 45 days after the seal gap measurements indicate a failure (or empty the storage vessel)?<br>§63.120(b)(8)  | <b>G Yes</b> | <b>G No</b> |                 |
| 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)  | <b>G Yes</b> | <b>G No</b> |                 |
| 9.  | Does the EFR rest on the surface of the stored liquid?<br>§63.120(c)(3)<br><br><i>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.</i> | <b>G Yes</b> | <b>G No</b> |                 |
| 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)  | <b>G Yes</b> | <b>G No</b> |                 |
| 11.   | Is there a secondary seal installed above the primary seal?<br>§63.120(b)(6)(i)   | <b>G Yes</b> | <b>G No</b> |                 |
| 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)  | <b>G Yes</b> | <b>G No</b> |                 |
|   | • 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)?<br>§63.119(c)(2)(ii)   | <b>G Yes</b> | <b>G No</b> |                 |
|   | • Is each gasketed cover on any EFR opening closed (unless open for access)?  | <b>G Yes</b> | <b>G No</b> |                 |
|   | • Are covers on each access hatch and gauge float well fastened air-tight when closed? §63.119(c)(2)(iii)   | <b>G Yes</b> | <b>G No</b> |                 |
|   | • Do gaskets on EFR opening covers close off the liquid surface from the atmosphere? §63.120(b)(10)(i)  | <b>G Yes</b> | <b>G No</b> |                 |

**Checklist 3: (cont'd)**

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

| A. <b>Monitoring and Inspection Requirements</b> §63.120(b) as cross-referenced from §63.1365(d)(3)   |       |      | <b>Comments</b> |
|---|-------|------|-----------------|
| 13. Inspect automatic bleeder vents.  |       |      |                 |
| <ul style="list-style-type: none"> <li>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)</li> </ul>                                | G Yes | G No |                 |
| <ul style="list-style-type: none"> <li>Are the automatic bleeder vents gasketed? §63.119(c)(2)(v)</li> </ul>  | G Yes | G No |                 |
| <ul style="list-style-type: none"> <li>Do the gaskets close off the liquid surface from the atmosphere? §63.120(b)(10)(i)</li> </ul>  | G Yes | G No |                 |
| <hr/>   |       |      |                 |
| 14. Inspect rim space vents.  |       |      |                 |
| <ul style="list-style-type: none"> <li>Are the rim space vents closed except when: §63.119(c)(2)(iv)</li> </ul>   |       |      |                 |
| <ul style="list-style-type: none"> <li>&lt; the roof is being floated off the roof leg supports?</li> </ul>   | G Yes | G No |                 |
| <ul style="list-style-type: none"> <li>&lt; the pressure beneath the rim seal exceeds the manufacturer's recommending setting?</li> </ul>   | G Yes | G No |                 |
| <ul style="list-style-type: none"> <li>Are the rim space vents gasketed? §63.119(c)(2)(v)</li> </ul>  | G Yes | G No |                 |
| <ul style="list-style-type: none"> <li>Do the gaskets close off the liquid surface from the atmosphere? §63.120(b)(10)(i)</li> </ul>  | G Yes | G No |                 |
| <hr/>   |       |      |                 |
| 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)  | G Yes | G No |                 |
| <hr/>   |       |      |                 |
| 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)                       | G Yes | G No |                 |
| <hr/>   |       |      |                 |
| 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) | G Yes | G No |                 |
| <hr/>   |       |      |                 |
| 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)  | G Yes | G No |                 |
| <hr/>   |       |      |                 |

**Checklist 3: (cont'd)**

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

| A. <b>Monitoring and Inspection Requirements</b> §63.120(b) as cross-referenced from §63.1365(d)(3)   |              |             | <b>Comments</b> |
|---|--------------|-------------|-----------------|
| 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)                                | <b>G Yes</b> | <b>G No</b> |                 |
| • Are there no holes, tears, or other openings in the seal or seal fabric? §63.120(b)(6)(ii)  | <b>G Yes</b> | <b>G No</b> |                 |
| • 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 <sup>2</sup> per meter of vessel diameter?  | <b>G Yes</b> | <b>G No</b> |                 |
| < The maximum gap width between the vessel wall and the seal does not exceed 1.27 cm?   | <b>G Yes</b> | <b>G No</b> |                 |
|   |              |             |                 |
| 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)  | <b>G Yes</b> | <b>G No</b> |                 |
| • 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 <sup>2</sup> per meter of vessel diameter?   | <b>G Yes</b> | <b>G No</b> |                 |
| < The maximum gap width between the vessel wall and the seal does not exceed 3.81 cm?   | <b>G Yes</b> | <b>G No</b> |                 |
| • 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)   | <b>G Yes</b> | <b>G No</b> |                 |
| • 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)   | <b>G Yes</b> | <b>G No</b> |                 |
| < 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)       | <b>G Yes</b> | <b>G No</b> |                 |
| < Is there a flexible coated fabric that spans the space between the metal shoe and the vessel wall?  | <b>G Yes</b> | <b>G No</b> |                 |
| • If the primary seal is a liquid-mounted seal, is the seal in contact with the liquid between the storage vessel wall and EFR?             | <b>G Yes</b> | <b>G No</b> |                 |

**Checklist 3: (cont'd)**

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

| <b>B. Recordkeeping and Reporting Requirements</b> §§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??) |  | <b>Comments</b> |      |
|---|--|-----------------|------|
| 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)  | G Yes           | G No |
| 2.  | Did you record the date of the seal gap measurement, the raw data obtained, and calculations performed? §63.123(d)   | G Yes           | G No |
| 3.  | Did you record the occurrence of each visual inspection after a storage vessel was emptied and degassed?   | G Yes           | G No |
| 4.  | Do you maintain records for 5 years? §63.1367(a)(1)  | G Yes           | G 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?  | G Yes           | G No |
|   | • the date and results of seal gap measurements?   | G Yes           | G No |
|   | • the date and nature of the repair or the date the vessel was emptied?  | G Yes           | G 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?  | G Yes           | G No |
|   | • description of the failure?  | G Yes           | G No |
|   | • documentation that alternate storage capacity was unavailable?   | G Yes           | G No |
|   | • schedule of actions taken to make repairs or empty the vessel as soon as possible?   | G Yes           | G No |
|   | • date the storage vessel was emptied and nature of and date repair was made?  | G Yes           | G 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?  | G Yes           | G No |
|   | • identification of all storage vessels with failures?   | G Yes           | G No |
|   | • description of the failures?   | G Yes           | G No |
|   | • date and nature of repair ro date when the vessel was emptied?   | G Yes           | G No |

**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?<br>§63.120(b)(10)(ii) | <b>G</b> Yes | <b>G</b> No |
|----|--|--------------|-------------|

**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? **G Yes** **G 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? **G Yes** **G 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? **G Yes** **G 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? **G Yes** **G No**

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3. Does the floating deck rest on the liquid surface? §63.120(a)(4) and (7) **G Yes** **G 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.*

**Checklist 4: (cont'd)**

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

| <b>A. Monitoring and Inspection Requirements §63.120(a) as cross-referenced from §63.1365(d)(3)</b> |  | <b>Comments</b> |      |
|---|--|-----------------|------|
| 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)  | G Yes           | G No |
| -----   |  |                 |      |
| 5.  | Inspect the seal(s). §63.120(a)(4) and (7)   |                 |      |
|   | • Is the seal attached to the floating deck?   | G Yes           | G No |
|   | • Is the seal or seal fabric free of holes, tears, or other openings?  | G Yes           | G No |
|   | • Does the seal make continuous contact with the wall of the storage vessel (i.e., no visible gaps between the seal and wall)?   | G Yes           | G No |
| -----   |  |                 |      |
| 6.  | Is the floating deck equipped with a liquid-mounted seal, metallic shoe seal, or a double seal? §63.119(b)(3)  | G Yes           | G 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)                   | G Yes           | G 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) | G Yes           | G No |
|   | • Is each gasketed cover on any deck opening closed (unless open for access)? §63.119(c)(2)(ii)  | G Yes           | G No |
|   | • Are covers on each access hatch and gauge float well fastened air-tight when closed? §63.119(c)(2)(ii)   | G Yes           | G No |
|   | • Do gaskets on deck opening covers close off the liquid surface from the atmosphere? §63.120(a)(7)  | G Yes           | G 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)   | G Yes           | G No |
|   | • Are the automatic bleeder vents gasketed? §63.119(c)(2)(v)   | G Yes           | G No |
|   | • Do the gaskets close off the liquid surface from the atmosphere? §63.120(a)(7)   | G Yes           | G No |
| -----   |  |                 |      |

**Checklist 4: (cont'd)**

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

| <b>A. Monitoring and Inspection Requirements §63.120(a) as cross-referenced from §63.1365(d)(3)</b>                               |   | <b>Comments</b> |             |
|---|---|-----------------|-------------|
| 9.  | Inspect rim space vents. <ul style="list-style-type: none"> <li>• Are the rim space vents closed except when either: §63.119(c)(2)(iv)               <ul style="list-style-type: none"> <li>&lt; the roof is being floated off the roof leg supports? <b>G Yes</b> <b>G No</b></li> <li>&lt; the pressure beneath the rim seal exceeds the manufacturer's recommending setting? <b>G Yes</b> <b>G No</b></li> </ul> </li> <li>• Are the rim space vents gasketed? §63.119(c)(2)(v) <b>G Yes</b> <b>G No</b></li> <li>• Do the gaskets close off the liquid surface from the atmosphere? §63.120(a)(7) <b>G Yes</b> <b>G No</b></li> </ul> |                 |             |
| 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)  | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |
| 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)  | <b>G Yes</b>    | <b>G No</b> |
| 14.   | Did you complete any repairs of failures detected during inspections before refilling the storage vessel?   | <b>G Yes</b>    | <b>G No</b> |
| <b>B. Recordkeeping and Reporting Requirements §§ 63.122 and 63.123 as cross referenced by §§ 63.1367(?) and 63.1368(g)(2)(?)</b> |   | <b>Comments</b> |             |
| <b>Note:</b> There are reporting and recordkeeping requirements for visual inspections.   |   |                 |             |
| 1.  | Did you record the occurrence of each visual inspection? §63.123(e)   | <b>G Yes</b>    | <b>G No</b> |
| 2.  | Do you maintain all records for 5 years? §63.1367(a)(1)   | <b>G Yes</b>    | <b>G No</b> |

**Checklist 4: (cont'd)**

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

| <b>B. Recordkeeping and Reporting Requirements</b> §§ 63.122 and 63.123 as cross referenced by §§ 63.1367(??) and 63.1368(g)(2)(??) |  | <b>Comments</b> |             |
|---|--|-----------------|-------------|
| 3.  | If you detected a failure during an inspection, did you submit the following information in your periodic report:<br>§63.122(d)(1)(ii)   |                 |             |
|   | • date of the inspection?  | <b>G Yes</b>    | <b>G No</b> |
|   | • identification of all storage vessels with failures?   | <b>G Yes</b>    | <b>G No</b> |
|   | • description of the failures?   | <b>G Yes</b>    | <b>G No</b> |
|   | • either the date and nature of repairs made or the date the vessel was emptied (if the vessel was not already empty)?   | <b>G Yes</b>    | <b>G No</b> |
| 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:<br>§63.122(d)(1)(iii) |                 |             |
|   | • identification of the storage vessel?  | <b>G Yes</b>    | <b>G No</b> |
|   | • description of the failure?  | <b>G Yes</b>    | <b>G No</b> |
|   | • documentation that alternate storage capacity was unavailable?   | <b>G Yes</b>    | <b>G No</b> |
|   | • schedule of actions taken to make repairs or empty the vessel as soon as possible?   | <b>G Yes</b>    | <b>G No</b> |
|   | • date the storage vessel was emptied and nature of and date repair was made?  | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |

**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.

| <b>A. Monitoring Requirements</b>                  |   | <b>Comments</b> |             |
|--|---|-----------------|-------------|
| 1.   | Did you install a CEMS to monitor and record the outlet TOC concentration at least once every 15 minutes? §63.1366(b)(5)  | <b>G</b> Yes    | <b>G</b> 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? | <b>G</b> Yes    | <b>G</b> No |
| 3.   | Is the monitoring device calibrated at a minimum with quarterly cylinder gas audits? §63.1366(b)(5)   | <b>G</b> Yes    | <b>G</b> No |
| 4.   | If supplemental gases are introduced before the control device, is the monitored concentration corrected? §63.1366(b)(5)  | <b>G</b> Yes    | <b>G</b> No |
| 5.   | Is the CEMS data reduced to operating day or operating block averages? §63.1366(b)(2)   | <b>G</b> Yes    | <b>G</b> No |
| <b>B. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |             |
| 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)   | <b>G</b> Yes    | <b>G</b> No |
| 2.   | Have you recorded any maintenance performed on the CEMS? §63.1367(b)(3)   | <b>G</b> Yes    | <b>G</b> No |

**Checklist 5: (cont'd)**

**Requirements for a storage vessels meeting the alternative standard (Option 4E)**

| <b>B. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |      |
|--|---|-----------------|------|
| 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)?  | G Yes           | G No |
|  | • The date and time of each period when the CEMS is inoperative except for zero (low-level) and high-level checks?  | G Yes           | G 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)?  | G Yes           | G 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?   | G Yes           | G No |
|  | • The nature and cause of any malfunction of your monitor (if known), and corrective actions taken?   | G Yes           | G No |
|  | • The total process operating time during the reporting period?   | G Yes           | G No |
|  | • All procedures, including calibrations, that are part of your quality control program?  | G Yes           | G No |
| 4.   | Have you recorded all maintenance and calibration checks performed on the CEMS? §63.1367(b)(3)  | G Yes           | G No |
| 5.   | Do you maintain records for 5 years? §63.1367(a)(1)   | G Yes           | G 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)  | G Yes           | G 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) | G Yes           | G 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 <sub>2</sub> concentration exceeds 20 ppmv?   | G Yes           | G No |
|  | • identification of all operating days when insufficient monitoring data are collected?   | G Yes           | G No |

**Checklist 5: *(cont'd)***

**Requirements for a storage vessels meeting the alternative standard (Option 4E)**

## Chapter 5 - Complying with requirements for wastewater systems

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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.

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**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.

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### 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

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**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.

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- 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

## 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
- 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

*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

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**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.

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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  $\leq 151 \text{ m}^3$  storing wastewater with maximum true vapor pressure  $\leq 5.2 \text{ kPa}$
- tank size  $\leq 75 \text{ m}^3$  and  $< 151 \text{ m}^3$  storing wastewater with maximum true vapor pressure  $\leq 13.1 \text{ kPa}$
- 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<br>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<br>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<br>Emissions of organic HAP's must be reduced using an enclosure.<br>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

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  |                      |

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 than the 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)? | <b>G Yes</b> | <b>G No</b> |  |
|--|--------------|-------------|--|

**B. Recordkeeping and Reporting Requirements** **Comments**

- |   |              |             |  |
|---|--------------|-------------|--|
| 1. Do you record the occurrence of each semiannual visual inspection for improper work practices? | <b>G Yes</b> | <b>G No</b> |  |
|---|--------------|-------------|--|

- |  |              |             |  |
|--|--------------|-------------|--|
| 2. Do you record the occurrence of each semiannual visual inspection for control equipment failures? | <b>G Yes</b> | <b>G No</b> |  |
|--|--------------|-------------|--|

- |  |              |             |  |
|--|--------------|-------------|--|
| 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   | <b>G Yes</b> | <b>G No</b> |  |
| • Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?   | <b>G Yes</b> | <b>G No</b> |  |
| • Description of the failure?  | <b>G Yes</b> | <b>G No</b> |  |
| • Description of the nature of the repair?   | <b>G Yes</b> | <b>G No</b> |  |
| • Date the repair was made?  | <b>G Yes</b> | <b>G No</b> |  |

**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.

| <b>1. Monitoring and Inspection Requirements</b>   |              |             | <b>Comments</b> |
|--|--------------|-------------|-----------------|
| 1. Do you inspect all access hatches and all other openings to make sure they are closed when not in use?  | <b>G</b> Yes | <b>G</b> 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)?   | <b>G</b> Yes | <b>G</b> No |                 |
| 3. For surface impoundments with floating flexible membrane covers, is the floating flexible membrane cover made out of one of the following: <ul style="list-style-type: none"> <li>• high density polyethylene with a thickness of no less than 2.5 millimeters; or</li> <li>• a material that has an equivalent organic permeability and integrity for the intended service life of the floating cover</li> </ul> | <b>G</b> Yes | <b>G</b> 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?   | <b>G</b> Yes | <b>G</b> No |                 |
| <b>B. Recordkeeping and Reporting Requirements</b>   |              |             | <b>Comments</b> |
| 1. Do you record the occurrence of each semiannual visual inspection for improper work practices?  | <b>G</b> Yes | <b>G</b> No |                 |
| 2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?   | <b>G</b> Yes | <b>G</b> No |                 |

**Checklist 2: (cont'd)**

**Requirements for all surface impoundments**

| <b>B. Recordkeeping and Reporting Requirements</b>  |              | <b>Comments</b> |
|---|--------------|-----------------|
| 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  | <b>G Yes</b> | <b>G No</b>     |
| • Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?        | <b>G Yes</b> | <b>G No</b>     |
| • Description of the failure?   | <b>G Yes</b> | <b>G No</b>     |
| • Description of the nature of the repair?  | <b>G Yes</b> | <b>G No</b>     |
| • Date the repair was made?   | <b>G Yes</b> | <b>G No</b>     |

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### 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 <b>all</b> of the following requirements:  |       |      |          |
| <ul style="list-style-type: none"> <li>the container meets existing DOT specifications and testing requirements or the requirements of § 63.148 of subpart G?</li> </ul>   | G Yes | G No |          |
| <ul style="list-style-type: none"> <li>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)?</li> </ul>  | G Yes | G No |          |
| -----  |       |      |          |
| 2. For containers with capacity greater than 0.42 cubic meters, do you meet all of the following requirements:   |       |      |          |
| <ul style="list-style-type: none"> <li>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?</li> </ul> | G Yes | G No |          |
| <ul style="list-style-type: none"> <li>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)?</li> </ul>  | G Yes | G 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?   | G Yes | G No |          |
| -----  |       |      |          |
| 3. Is all control equipment functioning properly (e.g., covers and doors are not cracked, gapped, or broken)?  | G Yes | G No |          |
| -----  |       |      |          |
| B. Recordkeeping and Reporting Requirements  |       |      | Comments |
| 1. Do you record the occurrence of each semiannual visual inspection for improper work practices?  | G Yes | G No |          |
| -----  |       |      |          |
| 2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?   | G Yes | G No |          |
| -----  |       |      |          |

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

| <b>B. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b> |             |
|---|-----------------|-------------|
| 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  |                 |             |
| • Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?        | <b>G Yes</b>    | <b>G No</b> |
| • Description of the failure?   |                 |             |
| • Description of the nature of the repair?  | <b>G Yes</b>    | <b>G No</b> |
| • Date the repair was made?   | <b>G Yes</b>    | <b>G No</b> |
|   | <b>G Yes</b>    | <b>G No</b> |
| -----   |                 |             |
| 4. Do you keep a record of the capacity of each container maintained at your facility if applicable?  | <b>G Yes</b>    | <b>G No</b> |

**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 <b>all</b> of the following requirements:   |          |  |
| <ul style="list-style-type: none"> <li>• the individual drain system is designed and operated to segregate the vapors within the system from other drain systems and the atmosphere? <span style="float: right;">G Yes      G No</span></li> <li>• 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)? <span style="float: right;">G Yes      G No</span></li> <li>• the cover and all openings are maintained in good condition? <span style="float: right;">G Yes      G No</span></li> </ul>   |          |  |
| -----   |          |  |
| 5. Do you meet <b>all</b> of the following requirements for drains:   |          |  |
| <ul style="list-style-type: none"> <li>• each drain is equipped with either water seal controls (e.g., p-trap, s-trap) or a tightly-fitting cap or plug? <span style="float: right;">G Yes      G No</span></li> <li>• for each drain equipped with a water seal, there is water in the water seal? <span style="float: right;">G Yes      G No</span></li> <li>• 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: <ul style="list-style-type: none"> <li>&lt; the drain pipe discharging the wastewater extends below the liquid surface in the water seal; or <span style="float: right;">G Yes      G No</span></li> <li>&lt; 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? <span style="float: right;">G Yes      G No</span></li> </ul> </li> </ul> |          |  |
| -----   |          |  |

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

| <b>1. Monitoring and Inspection Requirements</b>   |       | <b>Comments</b> |  |
|--|-------|-----------------|--|
| 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?  | G Yes | G 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: | G Yes | G No            |  |
| < the vent pipe is at least 90 centimeters in length?  | G Yes | G No            |  |
| < the vent pipe does not exceed 10.2 centimeters in diameter?  | G Yes | G 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?   | G Yes | G No            |  |
| -----  |       |                 |  |
| 4. Do you meet <b>all</b> 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?  | G Yes | G No            |  |
| • sewer lines are not open to the atmosphere?  | G Yes | G No            |  |
| <b>B. Recordkeeping and Reporting Requirements</b>   |       | <b>Comments</b> |  |
| -----  |       |                 |  |
| 1. Do you record the occurrence of each semiannual visual inspection for improper work practices?  | G Yes | G No            |  |
| -----  |       |                 |  |
| 2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?   | G Yes | G 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   | G Yes | G No            |  |
| • Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?   | G Yes | G No            |  |
| • Description of the failure?  | G Yes | G No            |  |
| • Description of the nature of the repair?   | G Yes | G No            |  |
| • Date the repair was made?  | G Yes | G No            |  |

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

| <b>B. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b> |             |
|---|-----------------|-------------|
| 4. If you use a drain, junction box, or sewer line as an alternative, do you keep <b>all</b> of the following records:  |                 |             |
| <ul style="list-style-type: none"> <li>• documentation of the occurrence of each semiannual inspection of drains to ensure that caps or plugs are in place and properly installed; or</li> </ul>  | <b>G Yes</b>    | <b>G No</b> |
| <ul style="list-style-type: none"> <li>• documentation of the occurrence of each semiannual verification of water supply to the drain?</li> </ul>   | <b>G Yes</b>    | <b>G No</b> |
| <ul style="list-style-type: none"> <li>• 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?</li> </ul>                                  | <b>G Yes</b>    | <b>G No</b> |
| <ul style="list-style-type: none"> <li>• 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?</li> </ul> | <b>G Yes</b>    | <b>G No</b> |

## 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? | G Yes    | G No |
| 2. Is the floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid)?  | G Yes    | G No |
| 3. Is a secondary seal installed above the primary seal?  | G Yes    | G No |
| 4. If a secondary seal is installed, do you inspect the secondary seal according to <b>all</b> of the following requirements:   |          |      |
| • the secondary seal is continuous and completely covers the annular space between the floating roof and the separator wall?  | G Yes    | G No |
| • there are no holes, tears, or other openings in the seal or seal fabric?  | G Yes    | G No |
| • the seal is not detached from the floating deck?  | G Yes    | G No |
| • there are no visible gaps between the seal and the wall of the oil-water separator except as specified below?   | G Yes    | G No |
| • perform seal gap measurement of the secondary seal according to the following requirements:   | G Yes    | G 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**

| <b>1. Monitoring and Inspection Requirements</b>   |       | <b>Comments</b> |  |
|--|-------|-----------------|--|
| 5. Do you inspect the primary seal according to the following requirements:  |       |                 |  |
| • the primary seal is a liquid-mounted seal?   | G Yes | G No            |  |
| • there are no holes, tears, or other openings in the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used)?   | G Yes | G 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?   | G Yes | G No            |  |
| • the seal is not detached from the floating roof?   | G Yes | G 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?   | G Yes | G No            |  |
| • perform seal gap measurements of the primary seal according to the following requirements:   | G Yes | G 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? | G Yes | G 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?   | G Yes | G No            |  |
| -----  |       |                 |  |
| 8. Are no gaskets, joints, lids, covers, or doors cracked, gapped, or broken?  | G Yes | G No            |  |
| <b>B. Recordkeeping and Reporting Requirements</b>   |       | <b>Comments</b> |  |
| -----  |       |                 |  |
| 1. Do you record the occurrence of each semiannual visual inspection for improper work practices?  | G Yes | G No            |  |
| -----  |       |                 |  |
| 2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?   | G Yes | G No            |  |
| -----  |       |                 |  |

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

| <b>B. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b> |             |
|---|-----------------|-------------|
| 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  | <b>G Yes</b>    | <b>G No</b> |
| • Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?        | <b>G Yes</b>    | <b>G No</b> |
| • Description of the failure?   | <b>G Yes</b>    | <b>G No</b> |
| • Description of the nature of the repair?  | <b>G Yes</b>    | <b>G No</b> |
| • Date the repair was made?   | <b>G Yes</b>    | <b>G No</b> |

## 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?  | G Yes | G No     |
| 2. Does the countercurrent flow configuration have a minimum of 10 actual trays?   | G Yes | G No     |
| 3. Is the minimum steam flow rate 0.04 kilograms of steam per liter of wastewater feed?  | G Yes | G No     |
| 4. Is the minimum wastewater feed temperature to the steam stripper 95 degrees Celsius?  | G Yes | G No     |
| 5. Is the maximum liquid loading 67,100 liters per hour per square meter?  | G Yes | G No     |
| 6. Does the design steam stripper operate at nominal atmospheric pressure?   | G Yes | G 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?                                | G Yes | G No     |
| 2. Do you record the occurrence of each semiannual visual inspection for control equipment failures?   | G Yes | G 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   | G Yes | G No     |
| • Identification of the wastewater tank, surface impoundment, container, individual drain system, or oil-water separator having the failure?   | G Yes | G No     |
| • Description of the failure?  | G Yes | G No     |
| • Description of the nature of the repair?   | G Yes | G No     |
| • Date the repair was made?  | G Yes | G No     |



## Chapter 6 - Complying with requirements for equipment leaks

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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

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**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.

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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.*

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)]

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*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.*

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## 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]

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

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**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 20EC;
- (2) The total concentration of the pure organic compounds constituents having a vapor pressure greater than 0.3 kPa at 20EC 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.

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- 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... |
|---|--|--|--|
| <b>Pumps</b> in light liquid service and <b>agitators</b> in gas/vapor service and in light liquid service (Option 1) | <ul style="list-style-type: none"> <li>quarterly monitoring for leaks</li> <li>monthly monitoring based on calculation of percent leaking pumps</li> <li>weekly visual inspections</li> <li>repair of leaks</li> </ul> | <ul style="list-style-type: none"> <li>unsafe to monitor or inaccessible equipment</li> <li>pumps/agitators with dual mechanical seal system with barrier fluid</li> <li>pumps/agitators with no externally actuated shaft</li> <li>pumps/agitators with closed-vent systems and control devices</li> <li>pumps/agitators at unmanned sites</li> </ul> | §63.1363(c)                              |
| <b>Open-ended valves or lines</b> (Option 1)  | seal valves or lines with a cap, blind flange, plug, or a second valve   | <ul style="list-style-type: none"> <li>valves/lines designed to open automatically in emergency</li> <li>valves/lines containing materials which would autocatalytically polymerize</li> <li>valves/lines that would be hazardous if capped or equipped with a double block and bleed system</li> </ul>  | §63.1363(d)                              |
| <b>Valves</b> in gas/vapor service and light liquid service (Option 1)  | <ul style="list-style-type: none"> <li>initial monitoring for leaks</li> <li>repeat monitoring based on calculation of percent leaking valves</li> <li>repair of leaks</li> </ul>                                      | <ul style="list-style-type: none"> <li>unsafe and difficult to monitor valves</li> <li>inaccessible valves</li> </ul>  | §63.1363(e)                              |
| <b>Compressors</b> (Option 1)   | <ul style="list-style-type: none"> <li>equip compressors with a seal system that includes barrier fluid system</li> <li>repair of leaks</li> </ul>   | <ul style="list-style-type: none"> <li>compressors with closed-vent systems and control devices</li> <li>compressors with leak detection instrument reading of &lt;500 ppm</li> </ul>  | §63.164                                  |
| <b>Pressure relief devices</b> in gas/vapor service (Option 1)  | leak detection instrument reading of <500 ppm (except during pressure releases)  | <ul style="list-style-type: none"> <li>pressure relief devices with closed-vent systems and control devices</li> <li>pressure relief devices with upstream rupture disks</li> </ul>  | §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...                 |
|--|--|---|--|
| <b>Sampling connection systems</b><br>(Option 1)   | a closed-purge, closed-loop, or closed-vent system   | in-situ sampling systems and sampling systems without purge   | §63.166  |
| <b>Pumps, valves, connectors, and agitators</b> in heavy liquid service; <b>instrumentation systems</b> ; and <b>pressure relief devices</b> in liquid service<br>(Option 1) | <ul style="list-style-type: none"> <li>• monitoring of equipment with potential leaks</li> <li>• repair of leaks</li> </ul>  | potential leaks that are repaired before monitoring   | §63.169  |
| <b>Connectors</b> in gas/vapor service and in light liquid service<br>(Option 1)   | <ul style="list-style-type: none"> <li>• initial monitoring for leaks</li> <li>• repeat monitoring based on calculation of percent leaking connectors</li> <li>• repair of leaks</li> </ul>                                      | <ul style="list-style-type: none"> <li>• connectors that have been opened or have a broken seal</li> <li>• screwed connectors with a small inside diameter</li> <li>• ceramic or ceramic-lined connectors</li> <li>• unsafe and difficult to monitor connectors</li> <li>• inaccessible connectors</li> <li>• credits for removed connectors</li> </ul> | §63.174 with changes described in<br>§63.1363(b)(3)(iii) |
| <b>Closed-vent systems</b> and <b>control devices</b><br>(Option 2)  | <ul style="list-style-type: none"> <li>• percent reduction, outlet concentration, or equipment operating requirements</li> <li>• monitoring for use of bypass lines</li> <li>• inspections</li> <li>• repair of leaks</li> </ul> | control devices subject to monitoring, reporting, and recordkeeping requirements in 40 CFR part 264, subpart BB, <b>or</b> in 40 CFR part 265, subpart BB   | §63.172 with changes described in<br>§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.*

### **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 **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

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

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**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)].*

- < 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
- < 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)]

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*You may delay repair under certain situations [§63.1363(b)(3)(i) and §63.171]. For more information, see "When may I delay repair?"*

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**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)]
  - < 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

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*The results of these calculations are used to determine the frequency of subsequent monitoring, as described in Step 6.*

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*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:

| If the total number of valves you have for all groups is... | And the percentage of leaking valves in the group or subgroup is <sup>a</sup> ... | Then you must monitor at least once every <sup>b</sup> ... | 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),   |
|   | <0.5 percent  | 12 months  | (e)(4)(iv), and (e)(9)   |

<sup>a</sup> 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.

<sup>b</sup> 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)

- 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)]

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

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*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

### **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

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

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**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:

| 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 <sup>a</sup> ... | 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) <sup>b</sup>  | §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)           |

<sup>a</sup> 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)].

<sup>b</sup> 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 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...   |
|--|-------------------------------|--|--|
| <b>Recovery or recapture device</b><br>(e.g., condenser, absorber, etc.) | \$95 percent reduction        | 20 ppmv*                                       |  |
| <b>Enclosed combustion device</b>  | \$95 percent reduction        | 20 ppmv (dry basis, 3 percent O <sub>2</sub> ) | minimum residence time of 0.5 sec. At 1400EF (760EC) |
| <b>Flare</b>   | 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.

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*§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.*

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

**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

- 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 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 that you're meeting the emission reduction standard for at least a 1-year period.

- 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 least once per year [§63.178(b)(1)].

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

- P** §63.180(f) for pressure or vacuum loss
  - P** §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<br><b>or</b><br>if there's visible, audible, or olfactory evidence of fluid loss | there are indications of liquids dripping<br><b>or</b><br>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

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

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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... |                  |                     |
|---|--|------------------|---------------------|
|   | <b>monthly</b>   | <b>quarterly</b> | <b>semiannually</b> |
|   | Then you must monitor your batch process...                          |                  |                     |
| <b>0 to &lt;25 percent of the year</b>  | quarterly  | annually         | annually            |
| <b>25 to &lt;50 percent of the year</b> | quarterly  | semiannually     | annually            |
| <b>50 to &lt;75 percent of the year</b> | bimonthly  | three times      | semiannually        |
| <b>75 to 100 percent of the year</b>    | monthly  | quarterly        | semiannually        |

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... |
|--|---|-----------------|
| <b>pumps/agitators</b> in light liquid service   | <ul style="list-style-type: none"> <li>• tightening of packing gland nuts</li> <li>• ensuring the seal flush is operating at design pressure and temperature</li> </ul>   | §63.1363(c)(3)  |
| <b>valves</b> in gas/vapor or light liquid service   | <ul style="list-style-type: none"> <li>• tightening of bonnet bolts</li> <li>• replacement of bonnet bolts</li> <li>• tightening of packing gland nuts</li> <li>• injection of lubricant into lubricated packing</li> </ul>   | §63.1363(e)(8)  |
| <b>pumps, valves, connectors, and agitators</b> in heavy liquid service; <b>instrumentation systems</b> ; and <b>pressure relief devices</b> in liquid service | <ul style="list-style-type: none"> <li>• tightening of the packing gland nuts</li> <li>• ensuring that the seal flush is operating at design pressure and temperature</li> <li>• tightening or replacement of valve bonnet bolts</li> <li>• injection of lubricant into lubricated packing</li> </ul> | §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)].

**Option 2:**

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)].

**Option 3:**

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)]:

- 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?

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*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*

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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

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

*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 your 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.

- 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

- 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                   |

**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 <b>any</b> of the following methods:  |          |      |
| • physically tagging the equipment  | G Yes    | G No |
| • marking the equipment on a plant site plan  | G Yes    | G No |
| • marking the equipment in log entries  | G Yes    | G No |
| • designating process boundaries with waterproof identification   | G Yes    | G No |
| • another appropriate method for identifying equipment<br>§63.1363(a)(7)  | G Yes    | G 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) | G Yes    | G No |
| -----   |          |      |
| 3. If a leak was detected, did you attach a visible, weatherproof identification to the leaking equipment? §63.1363(a)(10)  | G Yes    | G No |
| -----   |          |      |
| 4. Did the identification in question 4 remain on the equipment until <b>either</b> :   |          |      |
| • after the leak was repaired for equipment other than valves or connectors in light liquid or gas/vapor service  | G Yes    | G No |
| • no leak was detected by follow-up monitoring for valves or connectors in light liquid or gas/vapor service<br>§63.1363(a)(10)   | G Yes    | G No |

**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)?<br><i>§63.1363(c)(2)(i)</i>   | G Yes    | G No |
| 2. Did you calculate the percent of leaking pumps using the procedure outlined in §63.1363(c)(4)?  | G Yes    | G No |
| 3. Did you monitor each pump monthly if (based on a 1-year rolling average) the greater of either: <ul style="list-style-type: none"> <li>• 10 percent of the pumps in a group of processes leak</li> <li>• three pumps in a group of processes leak <i>§63.1363(c)(4)</i></li> </ul>  | G Yes    | G No |
| 4. Have you performed weekly visual inspections of each pump and agitator for indications of liquids dripping from the pump or agitator seal? <i>§63.1363(c)(2)(iii)</i>   | G Yes    | G No |
| 5. Have you done the following for each pump or agitator equipped with a dual mechanical seal: <ul style="list-style-type: none"> <li>• ensured that the dual mechanical seal has either: <ul style="list-style-type: none"> <li>&lt; a barrier fluid pressure that is always greater than the pump/agitator stuffing box pressure</li> <li>&lt; a barrier fluid degassing reservoir connected by a closed-vent system to a control device</li> <li>&lt; a closed-loop system that purges the barrier fluid into a process stream</li> </ul> </li> <li>• observed the barrier fluid system failure sensor daily (unless the sensor has an alarm or the equipment is at an unmanned plant site)</li> <li>• visually inspected each pump/agitator weekly and monitored for leaks if liquids are dripping from the seal</li> <li>• repaired any leaks</li> <li>• included the pump in the calculation of percent leaking pumps <i>§63.1363(c)(5)</i></li> </ul> | G Yes    | G No |

**Checklist 2: (cont'd)**

**Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service**

| <b>A. Monitoring and Inspection Requirements</b> |  | <b>Comments</b> |             |
|--|--|-----------------|-------------|
| 6.   | Have you done the following for each pump or agitator designed with no externally actuated shaft penetrating the pump/agitator housing: <ul style="list-style-type: none"> <li>• performed weekly visual inspections for indications of liquids dripping from the pump or agitator seal</li> <li>• included the pumps in the calculation of percent leaking pumps §63.1363(c)(6)</li> </ul>  | <b>G Yes</b>    | <b>G No</b> |
| 7.   | Have you visually inspected each pump or agitator at unmanned plant sites at least once per month? §63.1363(c)(8)  | <b>G Yes</b>    | <b>G No</b> |
| <b>B. Leak Repair Requirements</b>               |  | <b>Comments</b> |             |
| 1.   | Was a first attempt to repair the leak made within 5 days after the leak was detected? First attempts to repair leaks include: <ul style="list-style-type: none"> <li>• tightening of packing gland nuts</li> <li>• ensuring the seal flush is operating at design pressure and temperature §63.1363(c)(3)</li> </ul>  | <b>G Yes</b>    | <b>G No</b> |
| 2.   | Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: <ul style="list-style-type: none"> <li>• the repair was technically infeasible without a process unit shutdown</li> <li>• the equipment was isolated from the process and did not remain in organic HAP service</li> <li>• 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</li> <li>• pump repair requires replacement of the existing seal with a new system that will better meet the PAI rule requirements §63.1363(c)(3)</li> </ul> | <b>G Yes</b>    | <b>G No</b> |
| 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?<br>§63.1363(b)(3)(i)(A) as cross referenced by §63.1363(c)(3)  | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |

**Checklist 2: (cont'd)**

**Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service**

| <b>B. Leak Repair Requirements</b>                 |   | <b>Comments</b> |             |
|--|---|-----------------|-------------|
| 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)  | <b>G Yes</b>    | <b>G No</b> |
| <b>C. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |             |
| 1.   | Do your records include identification numbers for pumps and agitators subject to the equipment leak requirements? §63.1363(g)(2)(i)(A)   | <b>G Yes</b>    | <b>G No</b> |
| 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)  | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |
| 4.   | Do your records include the following information for each dual mechanical seal system installed on a pump or agitator: <ul style="list-style-type: none"> <li>design criteria that indicates failure of the seal system, the barrier fluid system, or both</li> <li>your explanation of the design criteria</li> <li>any changes to the design criteria and the reasons for the changes §63.1363(g)(2)(v)</li> </ul> | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |
| 6.   | Do your records include documentation that visual inspection for leaks in pumps and agitators were conducted, including both: <ul style="list-style-type: none"> <li>the date if the inspection</li> <li>documentation of monitoring performed on leaking equipment identified during the inspection §63.1363(g)(3)</li> </ul>  | <b>G Yes</b>    | <b>G No</b> |

**Checklist 2: (cont'd)**

**Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service**

| <b>C. Recordkeeping and Reporting Requirements</b>   | <b>Comments</b> |      |
|--|-----------------|------|
| 7. If you detected a leak, have you recorded:  |                 |      |
| • the instrument and the equipment identification number and the operator name, initials, or identification number   | G Yes           | G No |
| • date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair   | G Yes           | G 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  | G Yes           | G No |
| • whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay  | G Yes           | G No |
| • if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired   | G Yes           | G 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)   | G Yes           | G No |
| <hr/>  |                 |      |
| 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) | G Yes           | G No |
| <hr/>  |                 |      |
| 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)   | G Yes           | G No |
| <hr/>  |                 |      |
| 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  | G Yes           | G No |
| • the number of pumps and agitators for which leaks were not repaired  | G Yes           | G No |
| • the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible  | G Yes           | G 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)  | G Yes           | G No |
| <hr/>  |                 |      |
| 11. Did you include any change in the Notification of Compliance Status report in your periodic report? § 63.1363(h)(3)(iv)  | G Yes           | G No |

**Checklist 2: (cont'd)**

**Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service**

### 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)   | G Yes    | G No |
| 2.  | Does the open end remain sealed at all times except when either: <ul style="list-style-type: none"> <li>• operations require flow of process fluid through the open-ended valve or line</li> <li>• maintenance or repair is being conducted §63.1363(d)(1)(ii)</li> </ul> | G Yes    | G No |
| 3.  | Did you replace the seal within 1 hour after completion of the activities in question 2? §63.1363(d)(1)(ii)   | G Yes    | G 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)  | G Yes    | G 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)  | G Yes    | G 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)  | G Yes    | G 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)   | G Yes    | G No |
| 4.  | Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv)  | G Yes    | G No |

**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.

| <b>A. Monitoring Requirements</b>  |  | <b>Comments</b> |             |
|------------------------------------|--|-----------------|-------------|
| 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)  | <b>G</b> Yes    | <b>G</b> No |
| 2.                                 | Have you assigned valves to process groups or subgroups according to the procedures outlined in §§63.1363(e)(5) and (6)?   | <b>G</b> Yes    | <b>G</b> 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)?   | <b>G</b> Yes    | <b>G</b> 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))?  | <b>G</b> Yes    | <b>G</b> No |
| <b>B. Leak Repair Requirements</b> |  | <b>Comments</b> |             |
| 1.                                 | Was a first attempt to repair the leak made within 5 days after the leak was detected? First attempts to repair leaks include: <ul style="list-style-type: none"> <li>• tightening or replacement of bonnet bolts</li> <li>• tightening of packing gland nuts</li> <li>• injection of lubricant into lubricated packing</li> </ul> §63.1363(e)(7)(ii) and (e)(8) | <b>G</b> Yes    | <b>G</b> No |

**Checklist 4: (cont'd)****Requirements for valves in gas/vapor service and light liquid service**

| <b>B. Leak Repair Requirements</b>                 |   | <b>Comments</b> |             |
|--|---|-----------------|-------------|
| 2.   | Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: <ul style="list-style-type: none"> <li>the repair was technically infeasible without a process unit shutdown</li> <li>the equipment was isolated from the process and did not remain in organic HAP service</li> <li>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</li> <li>valve assembly supplies are not on hand and valve replacement is needed during a process unit shutdown <i>§§63.1363(b)(3)(i) and 63.171(b) through (e) as cross referenced by §63.1363(e)(7)(i)</i></li> </ul> | <b>G Yes</b>    | <b>G No</b> |
| 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? <i>§63.1363(b)(3)(i)(A) as cross referenced by §63.1363(e)(7)(i)</i>  | <b>G Yes</b>    | <b>G No</b> |
| 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? <i>§63.171(c) as cross referenced by §63.1363(e)(7)(i)</i>  | <b>G Yes</b>    | <b>G No</b> |
| 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)? <i>§63.171(e) as cross referenced by §63.1363(e)(7)(i)</i>  | <b>G Yes</b>    | <b>G No</b> |
| 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? <i>§63.1363(e)(7)(iii)</i>  | <b>G Yes</b>    | <b>G No</b> |
| <b>C. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |             |
| 1.   | Do your records include identification numbers for valves subject to the equipment leak requirements? <i>§63.1363(g)(2)(i)(A)</i>   | <b>G Yes</b>    | <b>G No</b> |

**Checklist 4: (cont'd)**

**Requirements for valves in gas/vapor service and light liquid service**

| <b>C. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |      |
|--|---|-----------------|------|
| 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)  | G Yes           | G No |
| 3.   | Do your records include a valve monitoring schedule? §63.1363(g)(2)(i)(B)   | G Yes           | G No |
| 4.   | Do your records include all of the following information pertaining to assignment of valves to process subgroups: <ul style="list-style-type: none"> <li>• which valves are assigned to each subgroup</li> <li>• monitoring results and calculations made for each subgroup for each monitoring period</li> <li>• which valves are reassigned and when they were reassigned</li> <li>• results of the semiannual overall performance calculation §63.1363(e)(5)(iv)</li> </ul>  | G Yes           | G 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)  | G Yes           | G 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)   | G Yes           | G No |
| 7.   | If you detected a leak, have you recorded: <ul style="list-style-type: none"> <li>• the instrument and the equipment identification number and the operator name, initials, or identification number</li> <li>• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair</li> <li>• 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</li> <li>• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay</li> <li>• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired</li> <li>• 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)</li> </ul> | G Yes           | G No |

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**Checklist 4: (cont'd)**

**Requirements for valves in gas/vapor service and light liquid service**

| <b>C. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |             |
|--|---|-----------------|-------------|
| 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) | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |

**Checklist 4: (cont'd)**

**Requirements for valves in gas/vapor service and light liquid service**

| <b>C. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b>          |
|---|--------------------------|
| 10. Did you include the following in your periodic report for each monitoring period during the 6-month reporting period? <ul style="list-style-type: none"><li>• the number of valves with leaks detected, the percent leakers, and the total number of valves monitored <b>G Yes</b> <b>G No</b></li><li>• the number of valves with leaks that were not repaired and the number of those valves that are non-repairable <b>G Yes</b> <b>G No</b></li><li>• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible <b>G Yes</b> <b>G No</b></li><li>• if applicable, the initiation of a monthly monitoring program if 2 percent or more valves leak §63.1363(h)(3)(ii) <b>G Yes</b> <b>G No</b></li></ul> |                          |
| 11. Did you include the following information in your periodic report: <ul style="list-style-type: none"><li>• valve reassignments occurring during the reporting period <b>G Yes</b> <b>G No</b></li><li>• results of the semiannual overall performance calculation §63.1363(e)(5)(vi) <b>G Yes</b> <b>G No</b></li></ul>   |                          |
| 12. Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv)  | <b>G Yes</b> <b>G No</b> |

**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)  | G Yes | G No |          |
| 2. Is the compressor seal system: <ul style="list-style-type: none"> <li>• operated with the barrier fluid pressure greater than the compressor stuffing box pressure</li> <li>• 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</li> <li>• equipped with a closed-loop system that purges the barrier fluid directly into a process stream §63.164(b)</li> </ul> | G Yes | G No |          |
| 3. Is the barrier fluid in heavy liquid service? §63.164(c)   | G Yes | G 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)  | G Yes | G 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)  | G Yes | G 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)   | G Yes | G No |          |

**Checklist 5: (cont'd)**  
**Requirements for compressors**

| <b>B. Leak Repair Requirements</b>                 |   | <b>Comments</b> |      |
|--|---|-----------------|------|
| 1.   | Was a first attempt to repair the leak made within 5 days after the leak was detected? §63.164(g)   | G Yes           | G No |
| 2.   | Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: <ul style="list-style-type: none"> <li>the repair was technically infeasible without a process unit shutdown §63.1363(b)(3)(i)(A) as cross referenced by §63.164(g)(1)</li> <li>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)</li> </ul> | G Yes           | G 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)   | G Yes           | G No |
| <b>C. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |      |
| 1.   | Do your records include identification numbers for compressors subject to the equipment leak requirements? §63.1363(g)(2)(i)(A)   | G Yes           | G No |
| 2.   | Have you updated the list of identification numbers in question 1 to incorporate any equipment changes? §63.1363(g)(2)(i)(A)  | G Yes           | G 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)   | G Yes           | G 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)   | G Yes           | G No |
| 5.   | Do your records include the following information for each compressor: <ul style="list-style-type: none"> <li>design criteria that indicates failure of the seal system, the barrier fluid system, or both</li> <li>your explanation of the design criteria</li> <li>any changes to the design criteria and the reasons for the changes § 63.1363(g)(2)(v)</li> </ul>   | G Yes           | G No |

**Checklist 5: (cont'd)**  
**Requirements for compressors**

| <b>C. Recordkeeping and Reporting Requirements</b>   | <b>Comments</b> |      |
|--|-----------------|------|
| 6. If you detected a leak, did you record:   |                 |      |
| • the instrument and the equipment identification number and the operator name, initials, or identification number   | G Yes           | G No |
| • date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair   | G Yes           | G 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  | G Yes           | G No |
| • whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay  | G Yes           | G No |
| • if repairs were delayed, dates of process shutdowns that occur while the equipment is unpaired   | G Yes           | G 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)   | G Yes           | G No |
| <hr/>  |                 |      |
| 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)          | G Yes           | G No |
| <hr/>  |                 |      |
| 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) | G Yes           | G No |
| <hr/>  |                 |      |
| 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)   | G Yes           | G No |
| <hr/>  |                 |      |
| 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  | G Yes           | G No |
| • the number of compressors for which leaks were not repaired  | G Yes           | G No |
| • the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible  | G Yes           | G 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)   | G Yes           | G No |
| <hr/>  |                 |      |

**Checklist 5: (cont'd)**  
**Requirements for compressors**

| <b>C. Recordkeeping and Reporting Requirements</b>   |              |             | <b>Comments</b> |
|--|--------------|-------------|-----------------|
| 11. Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv) | <b>G</b> Yes | <b>G</b> No |                 |

**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.

| <b>A. Monitoring Requirements</b> | <b>Comments</b> |
|-----------------------------------|-----------------|
|-----------------------------------|-----------------|

**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)     | <b>G Yes</b> | <b>G No</b> |
| 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)   | <b>G Yes</b> | <b>G No</b> |
| • Did you either:   | <b>G Yes</b> | <b>G No</b> |
| < 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>B. Recordkeeping and Reporting Requirements</b> | <b>Comments</b> |
|--|-----------------|
|--|-----------------|

- |  |              |             |
|--|--------------|-------------|
| 1. Do your records include identification numbers for pressure relief devices subject to the equipment leak requirements? §63.1363(g)(2)(i)(A)   | <b>G Yes</b> | <b>G No</b> |
| 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)  | <b>G Yes</b> | <b>G No</b> |
| 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) | <b>G Yes</b> | <b>G No</b> |
| 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)                           | <b>G Yes</b> | <b>G No</b> |

**Checklist 6: (cont'd)**

**Requirements for pressure relief devices in gas/vapor service**

| <b>B. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |             |
|--|---|-----------------|-------------|
| 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)                                     | <b>G Yes</b>    | <b>G No</b> |
| 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) | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |
| 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)  | <b>G Yes</b>    | <b>G No</b> |
| 9.   | Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv)  | <b>G Yes</b>    | <b>G No</b> |

**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.

| <b>A. Design Requirements</b> | <b>Comments</b> |
|-------------------------------|-----------------|
|-------------------------------|-----------------|

**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)  | <b>G</b> Yes | <b>G</b> No |  |
| 2. Do the closed-purge, closed-loop, or closed-vent systems do one of the following:  | <b>G</b> Yes | <b>G</b> No |  |
| <ul style="list-style-type: none"> <li>• collect and recycle purged process fluid to a process</li> <li>• capture and transport purged process fluid to a control device</li> <li>• collect, store, and transport purged process fluid to a waste management unit, TSDF, or permitted waste management facility §63.166(b)</li> </ul> |              |             |  |

| <b>B. Recordkeeping and Reporting Requirements</b> | <b>Comments</b> |
|--|-----------------|
|--|-----------------|

|  |              |             |  |
|--|--------------|-------------|--|
| 1. Do your records include identification numbers for sampling connection systems subject to the equipment leak requirements? §63.1363(g)(2)(i)(A)             | <b>G</b> Yes | <b>G</b> 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)                  | <b>G</b> Yes | <b>G</b> 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) | <b>G</b> Yes | <b>G</b> No |  |
| 4. Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv)                                      | <b>G</b> Yes | <b>G</b> No |  |

**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.

| <b>A. Monitoring Requirement</b> | <b>Comments</b> |
|----------------------------------|-----------------|
|----------------------------------|-----------------|

- |   |              |             |
|---|--------------|-------------|
| 1. After detecting a potential leak, did you either: <ul style="list-style-type: none"> <li>• monitor for leaks using the method in § 63.180(b) within 5 days after the potential leak is detected</li> <li>• repair the leak such that any of the following are true:               <ul style="list-style-type: none"> <li>&lt; you can no longer see, hear, smell, or otherwise detect the potential leak</li> <li>&lt; you see no bubbles at potential leak sites during a leak check with soap solution</li> <li>&lt; the system will hold a test pressure §63.169(a) and (c)(3)</li> </ul> </li> </ul> | <b>G Yes</b> | <b>G No</b> |
|---|--------------|-------------|

| <b>B. Leak Repair Requirements</b> | <b>Comments</b> |
|------------------------------------|-----------------|
|------------------------------------|-----------------|

- |  |              |             |
|--|--------------|-------------|
| 1. Was a first attempt to repair the leak made within 5 days after the leak was detected? First attempts to repair leaks include: <ul style="list-style-type: none"> <li>• tightening of packing gland nuts</li> <li>• ensuring the seal flush is operating at design pressure and temperature</li> <li>• tightening or replacement of valve bonnet bolts</li> <li>• injection of lubricant into lubricated packing §63.169(c)(2) and (d)</li> </ul> | <b>G Yes</b> | <b>G No</b> |
|--|--------------|-------------|

**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>B. Leak Repair Requirements</b>   |              |             | <b>Comments</b> |
|--|--------------|-------------|-----------------|
| <p>2. Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied:</p> <ul style="list-style-type: none"> <li>• the repair was technically infeasible without a process unit shutdown</li> <li>• the equipment was isolated from the process and did not remain in organic HAP service</li> <li>• 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</li> <li>• pump repair requires replacement of the existing seal with a new system that will better meet the PAI rule requirements</li> <li>• valve assembly supplies are not on hand and valve replacement is needed during a process unit shutdown<br/>§§ 63.1363(b)(3)(i)(A) and 63.171 as cross referenced by §63.169(c)(2)</li> </ul> | <b>G Yes</b> | <b>G No</b> |                 |
| <p>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)</p>   | <b>G Yes</b> | <b>G No</b> |                 |
| <p>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)</p>  | <b>G Yes</b> | <b>G No</b> |                 |
| <p>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)</p>  | <b>G Yes</b> | <b>G No</b> |                 |
| <p>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)</p>  | <b>G Yes</b> | <b>G No</b> |                 |

**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>C. Recordkeeping and Reporting Requirements</b>   |          |     | <b>Comments</b> |
|--|----------|-----|-----------------|
| 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) | <b>G</b> | Yes | <b>G</b> 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)  | <b>G</b> | Yes | <b>G</b> No     |
| 3. Do your records include identification of instrumentation systems subject to the equipment leak requirements? §63.1363(g)(2)(iv)  | <b>G</b> | Yes | <b>G</b> 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   | <b>G</b> | Yes | <b>G</b> No     |
| • date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair   | <b>G</b> | Yes | <b>G</b> 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  | <b>G</b> | Yes | <b>G</b> No     |
| • whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay  | <b>G</b> | Yes | <b>G</b> No     |
| • if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired   | <b>G</b> | Yes | <b>G</b> 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)   | <b>G</b> | Yes | <b>G</b> 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)   | <b>G</b> | Yes | <b>G</b> 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)   | <b>G</b> | Yes | <b>G</b> No     |
| 7. Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv)  | <b>G</b> | Yes | <b>G</b> No     |

## 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?<br>§63.172(m)  | G Yes    | G 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.)<br>§63.172(b)   | G Yes    | G 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)  | G Yes    | G No |
| 4.  | If you operate a flare, have you met the requirements of § 63.11(b)? §63.172(d)   | G Yes    | G 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)   | G Yes    | G 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)   | G Yes    | G 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: <ul style="list-style-type: none"> <li>• Used a flow indicator that takes a reading at least once every 15 minutes at the entrance of the bypass line.</li> <li>• Secured the bypass line valve in the non-diverting position with a car-seal or a lock-and-key type configuration.</li> </ul> §63.172(j) | G Yes    | G No |
| <p><i>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)</i></p> |   |          |      |

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**Checklist 9: (cont'd)**  
**Requirements for closed-vent systems and control devices**

| <b>B. Monitoring and Inspection Requirements</b>   |   | <b>Comments</b> |      |
|--|---|-----------------|------|
| 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)  | G Yes           | G 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)  | G Yes           | G No |
| <b>C. Leak Repair Requirements</b>                 |   | <b>Comments</b> |      |
| 1.   | Was a first attempt to repair the leak made within 5 days after the leak was detected? §63.172(h)(1)  | G Yes           | G No |
| 2.   | Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: <ul style="list-style-type: none"> <li>the repair was technically infeasible without a process unit shutdown</li> <li>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)</li> </ul> | G Yes           | G 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)  | G Yes           | G No |
| <b>D. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |      |
| 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)   | G Yes           | G 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)  | G Yes           | G 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)   | G Yes           | G No |

**Checklist 9: (cont'd)**  
**Requirements for closed-vent systems and control devices**

| D. Recordkeeping and Reporting Requirements   | Comments |      |
|---|----------|------|
| <p>4. If you detected a leak, have you recorded:</p> <ul style="list-style-type: none"> <li>• the instrument and the equipment identification number and the operator name, initials, or identification number</li> <li>• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair</li> <li>• 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</li> <li>• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay</li> <li>• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired</li> <li>• 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)</li> </ul> | G Yes    | G No |
| <p>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)</p>   | G Yes    | G No |
| <p>6. Do your records include all of the following design and performance documentation:</p> <ul style="list-style-type: none"> <li>• detailed schematics, design specifications of the control device, and piping and instrumentation diagrams</li> <li>• the dates and descriptions of any changes in the design specifications</li> <li>• the flare design (i.e., steam assisted, air assisted, or nonassisted) and the results of the compliance demonstration</li> <li>• 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)</li> </ul>   | G Yes    | G No |
|   | G Yes    | G No |
|   | G Yes    | G No |
|   | G Yes    | G No |

**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: <ul style="list-style-type: none"> <li>• 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</li> <li>• dates and durations when the monitor is not operating</li> <li>• dates and durations of startups and shutdowns of control devices §63.1363(g)(7)(ii)</li> </ul> | G Yes    | G No |
| 8. Do your records include all of the following inspection information: <ul style="list-style-type: none"> <li>• 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</li> <li>• if leaks are detected during the inspection, the information specified in question 4 must be recorded §63.1363(g)(7)(iii)</li> </ul>  | G Yes    | G 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)  | G Yes    | G No |
| 10. Did you include the following in your periodic report for each monitoring period during the 6-month reporting period? <ul style="list-style-type: none"> <li>• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible</li> <li>• the results of all monitoring to show compliance with the provisions for inspections of closed vent systems §63.1363(h)(3)(ii)</li> </ul>   | G Yes    | G No |
| 11. Have you identified in your periodic report whether you are complying with the monitoring, recordkeeping, and reporting requirements in either: <ul style="list-style-type: none"> <li>• 40 CFR part 264, subpart BB, or in 40 CFR part 265, subpart BB</li> <li>• the PAI rule §63.172(j)</li> </ul>   | G Yes    | G No |
| 12. Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv)  | G Yes    | G 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.

| <b>A. Monitoring and Inspection Requirements</b>   |              |             | <b>Comments</b> |
|--|--------------|-------------|-----------------|
| 1. Did you monitor for leaks using the method in §63.180(b)?<br>§63.174(a)   | <b>G</b> Yes | <b>G</b> No |                 |
| 2. Did you perform initial monitoring of all connectors either:<br><ul style="list-style-type: none"> <li>• within 12 months after the compliance date at existing sources §63.174(b)(1)</li> <li>• 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)</li> </ul>   | <b>G</b> Yes | <b>G</b> No |                 |
| 3. Have you determined your percent leaking connectors using the methods in §63.174(i)?  | <b>G</b> Yes | <b>G</b> No |                 |
| 4. Have you performed repeat monitoring at the time intervals below that apply to you:<br><ul style="list-style-type: none"> <li>• each year if your percent leaking connectors is \$0.5%</li> <li>• every 4 years if your percent leaking connectors is \$0.25 to 0.5%</li> <li>• every 8 years if your percent leaking connectors is &lt;0.25%</li> <li>• every 2 years if your percent leaking connectors is 0.5 to &lt;1% § 63.174(b)(3)</li> </ul>  | <b>G</b> Yes | <b>G</b> No |                 |
| 5. Have you monitored connectors that have been opened or have a broken seal using one of the following two options:<br><ul style="list-style-type: none"> <li>• 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).</li> <li>• Didn't monitor the connector and didn't count the connector as nonrepairable. §63.174(c)(1)(i) and (ii)</li> </ul> | <b>G</b> Yes | <b>G</b> No |                 |

**Checklist 10: (cont'd)**

**Requirements for connectors in gas/vapor service and in light liquid service**

| <b>A. Monitoring and Inspection Requirements</b> |   | <b>Comments</b> |      |
|--|---|-----------------|------|
| 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)   | G Yes           | G No |
|  | • Complete initial monitoring in the new alternative no later than 12 months after you reported the switch<br><i>§63.174(c)(1)(iii)</i>   | G Yes           | G 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   | G Yes           | G 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 <i>§63.174(c)(2)</i> |                 |      |
| 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  | G Yes           | G No |
|  | • The integrity of the weld was demonstrated by monitoring, X-ray testing, acoustic monitoring, hydrotesting, or other method   | G Yes           | G No |
|  | • Welds created after November 10, 1997 but before June 23, 1999 were monitored or tested by 3 months after the compliance date   | G Yes           | G No |
|  | • Welds created after June 23, 1999 were monitored or tested within 3 months after being welded   | G Yes           | G 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<br><i>§63.174(j)</i>                         | G Yes           | G No |
| <b>B. Leak Repair Requirements</b>               |   | <b>Comments</b> |      |
| 1.   | Was a first attempt to repair the leak made within 5 days after the leak was detected? <i>§63.174(d)</i>  | G Yes           | G No |

**Checklist 10: (cont'd)**

**Requirements for connectors in gas/vapor service and in light liquid service**

| <b>B. Leak Repair Requirements</b>                 |   | <b>Comments</b> |             |
|--|---|-----------------|-------------|
| 2.   | Did you fully repair the leak within 15 days after it was detected, unless any of the following circumstances applied: <ul style="list-style-type: none"> <li>the repair was technically infeasible without a process unit shutdown</li> <li>the equipment was isolated from the process and did not remain in organic HAP service</li> <li>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)</li> </ul> | <b>G Yes</b>    | <b>G No</b> |
| 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?<br>§63.1363(b)(3)(i)(A) as cross referenced by §63.174(d)   | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |
| <b>C. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |             |
| 1.   | Do your records include either: <ul style="list-style-type: none"> <li>identification numbers of connectors subject to the equipment leak requirements</li> <li>identification of groups of connectors and the number of connectors in each group §63.1363(g)(2)(i)(A)</li> </ul>   | <b>G Yes</b>    | <b>G No</b> |
| 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)  | <b>G Yes</b>    | <b>G No</b> |
| 3.   | Do your records include a schedule for monitoring connectors?<br>§63.1363(g)(2)(i)(B)   | <b>G Yes</b>    | <b>G No</b> |
| 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?<br>§63.1363(g)(2)(vi)  | <b>G Yes</b>    | <b>G No</b> |

**Checklist 10: (cont'd)**

**Requirements for connectors in gas/vapor service and in light liquid service**

| <b>C. Recordkeeping and Reporting Requirements</b> |   | <b>Comments</b> |      |
|--|---|-----------------|------|
| 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?<br><i>§63.1363(g)(3)</i>  | G Yes           | G 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? <i>§ 63.1363(g)(2)(vii)</i>   | G Yes           | G No |
| 7.   | If you detected a leak, have you recorded: <ul style="list-style-type: none"> <li>• the instrument and the equipment identification number and the operator name, initials, or identification number</li> <li>• date the leak was detected, date of the first attempt to repair the leak, and date of successful leak repair</li> <li>• 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</li> <li>• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay</li> <li>• if repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired</li> <li>• 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.</li> <li>• 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</li> <li>• copies of periodic reports if records are not maintained on a computerized data base capable of generating summary reports from the records <i>§63.1363(g)(4)</i></li> </ul> | G Yes           | G 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)? <i>§63.1363(g)(8)</i>  | G Yes           | G 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? <i>§63.1363(g)(9)</i>  | G Yes           | G No |

**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?   |       |      |          |
| <ul style="list-style-type: none"> <li>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</li> </ul> | G Yes | G No |          |
| <ul style="list-style-type: none"> <li>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</li> </ul>                       | G Yes | G No |          |
| <ul style="list-style-type: none"> <li>the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible</li> </ul>   | G Yes | G No |          |
| <ul style="list-style-type: none"> <li>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)</li> </ul>                                 | G Yes | G No |          |
| 11. Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv)  | G Yes | G No |          |

**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.

| <b>A. Monitoring and Inspection Requirements</b> | <b>Comments</b> |
|--|-----------------|
|--|-----------------|

**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.

- |   |   |                                       |
|---|---|---------------------------------------|
| <p>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?</p> <ul style="list-style-type: none"> <li>• each time the equipment is reconfigured for production of a different product</li> <li>• at least once per year § 63.178(b)(1)</li> </ul>  | <p><b>G Yes</b></p> <p><b>G Yes</b></p> | <p><b>G No</b></p> <p><b>G No</b></p> |
| <p>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:</p> <ul style="list-style-type: none"> <li>• within 30 days of process start-up each time the equipment is reconfigured for production of a new product</li> <li>• at the frequencies specified in § 63.178(c)(3)(iii) §63.178(c)(3)</li> </ul> | <p><b>G Yes</b></p> <p><b>G Yes</b></p> | <p><b>G No</b></p> <p><b>G No</b></p> |
| <p>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</p>  | <p><b>G Yes</b></p>                     | <p><b>G No</b></p>                    |

| <b>B. Leak Repair Requirements</b> | <b>Comments</b> |
|------------------------------------|-----------------|
|------------------------------------|-----------------|

**Note:** Questions 1 and 3 apply for pressure testing and questions 2 and 3 apply for monitoring of batch equipment for leaks.

- |   |                     |                    |
|---|---------------------|--------------------|
| <p>1. If you detected a leak during pressure testing under the alternative standard, did you do one of the following:</p> <ul style="list-style-type: none"> <li>• repair the leak and retest the equipment before process start-up</li> <li>• repair the leak within 30 days after the second pressure test if the equipment failed the second test §63.178(b)(4)</li> </ul> | <p><b>G Yes</b></p> | <p><b>G No</b></p> |
|---|---------------------|--------------------|

**Checklist 11: (cont'd)**

**Requirements for equipment meeting alternative means of emission limitation**

| <b>B. Leak Repair Requirements</b>   |   | <b>Comments</b> |             |
|--|---|-----------------|-------------|
| 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) | <b>G Yes</b>    | <b>G No</b> |
| 3.   | If you delayed repair of leaks under the alternative standard, did all the following circumstances apply :  |                 |             |
|  | • replacement equipment was not available   | <b>G Yes</b>    | <b>G No</b> |
|  | • equipment supplies (which were sufficiently stocked) have been depleted   | <b>G Yes</b>    | <b>G No</b> |
|  | • the repair is made no later than 10 days after delivery of the replacement equipment §63.178(d)   | <b>G Yes</b>    | <b>G No</b> |
| <b>C. Recordkeeping and Reporting Requirements</b>   |   | <b>Comments</b> |             |
| <b>Note:</b> 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)   | <b>G Yes</b>    | <b>G No</b> |
| 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)  | <b>G Yes</b>    | <b>G No</b> |
| 3.   | Do your records include a list of equipment added to batch processes since the last monitoring period? §63.1363(g)(2)(viii)   | <b>G Yes</b>    | <b>G No</b> |
| 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)   | <b>G Yes</b>    | <b>G No</b> |

**Checklist 11: (cont'd)**

**Requirements for equipment meeting alternative means of emission limitation**

| <b>C. Recordkeeping and Reporting Requirements</b>   | <b>Comments</b> |             |
|--|-----------------|-------------|
| 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   | <b>G Yes</b>    | <b>G No</b> |
| • 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.) | <b>G Yes</b>    | <b>G No</b> |
| • identification of equipment on a plant site plan, in log entries, or by other appropriate methods.   | <b>G Yes</b>    | <b>G No</b> |
| • the dates of each pressure test, the test pressure, and the pressure drop observed during the test   | <b>G Yes</b>    | <b>G No</b> |
| • records of any evidence of fluid loss detected by sight, sound, or odor  | <b>G Yes</b>    | <b>G No</b> |
| • all of the following information if a process equipment train failed two consecutive pressure tests (this information must be kept for 2 years):                               | <b>G Yes</b>    | <b>G No</b> |
| < 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)   |                 |             |
| <hr style="border-top: 1px dashed black;"/>  |                 |             |
| 6. Does your periodic report include all of the following information:   |                 |             |
| • product process equipment train identification   | <b>G Yes</b>    | <b>G No</b> |
| • the number of pressure tests conducted   | <b>G Yes</b>    | <b>G No</b> |
| • the number of pressure tests where the equipment train failed either the retest or two consecutive pressure tests  | <b>G Yes</b>    | <b>G No</b> |
| • explanation for any delay of repair  | <b>G Yes</b>    | <b>G No</b> |
| • the results of all monitoring to determine compliance with the standards for inspection of closed-vent systems §63.1363(h)(3)(iii)   | <b>G Yes</b>    | <b>G No</b> |
| <hr style="border-top: 1px dashed black;"/>  |                 |             |

**Checklist 11: (cont'd)**

**Requirements for equipment meeting alternative means of emission limitation**

| <b>C. Recordkeeping and Reporting Requirements</b>  | <b>Comments</b>          |
|---|--------------------------|
| 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   | <b>G Yes</b> <b>G No</b> |
| • a schematic of the process, enclosure, and closed-vent system.  | <b>G Yes</b> <b>G No</b> |
| • 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) | <b>G Yes</b> <b>G No</b> |
| 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)  | <b>G Yes</b> <b>G No</b> |
| 9. Did you include any change in the Notification of Compliance Status report in your periodic report? §63.1363(h)(3)(iv)                                       | <b>G Yes</b> <b>G No</b> |



## Chapter 7 - Calculations and procedures

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NOT AVAILABLE



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?**

**TABLE 8-1. Report Due Dates**

| <b>If you have . . .</b>   | <b>And need to submit a(n) . . .</b>   | <b>Then submit the report before . . .</b>                      |
|--|--|---|
| <i>An existing</i> affected source   | Initial Notification Report [§63.1368(b)]  | <b>10/23/99</b><br><i>(120 days after the effective date)</i>   |
|  | -----  |   |
|  | Application for Approval of Construction or Reconstruction if reconstructing <u>after 6/23/02</u> <i>(effective date)</i> [§§63.1368(c) and 63.5(d)] |   |
|  | -----  |   |
|  | Precompliance Plan [§63.1368(e)]   | <b>12/23/01</b><br><i>(6 months before the compliance date)</i> |
|  | -----  |   |
|  | Compliance Extension Request [§§63.1368(n) and 63.1364(a)(2)]  | <b>2/23/02</b><br><i>(120 days before the compliance date)</i>  |
|  | -----  |   |
|  | Notification of continuous monitoring system performance evaluation [§63.1368(d)]  |   |
|  | -----  |   |
| Notification of Performance Test and Test Plan [§63.1368(m)]   | <i>60 days before the test</i>   |   |
| -----  |  |   |
| Notification of Compliance Status Report [§63.1368(f)]   | <b>11/20/02</b><br><i>(150 days after the compliance date)</i>   |   |
| -----  |  |   |
| Initial Semi-annual Periodic Report [§63.1368(g)]  | <b>7/20/03</b> (include information from 11/20/02 - 5/20/03)   |   |
| Note: Quarterly reporting is required if you comply with the alternative standard and you have excess emissions [§63.1368(g)(1)(ii)] | <i>(240 days after the Notification of Compliance Status Report)</i>   |   |
| -----  |  |   |
| Subsequent Semi-annual Periodic Reports [§63.1368(g)]  | <b>1/20/04</b> (include information from 5/21/03 - 11/19/03)   |   |
|  | <b>7/20/04</b> (include information from 11/20/03 - 5/20/04)   |   |
|  | <i>(60 days after each 6-month period)</i>   |   |
| -----  |  |   |
| 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   |   |

| <b>If you have . . .</b>     | <b>And need to submit a(n) . . .</b>                                | <b>Then submit the report before . . .</b>                      |
|------------------------------|---|---|
|                              | 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 |
| <i>A new affected source</i> | 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                                      |   |

**TABLE 8-2. Reporting Requirements**

| If you are submitting a(n) . . .                                  | then submit by . . .  | and include the following information . . .  | according to these sections of the rule . . . |
|---|---|--|---|
| <b>Initial Notification Report</b>                                | 120 days after the effective date or 120 days after rule applies to your facility | Name and address of owner or operator.<br>Address (physical location) of the facility.<br>Compliance date.<br>Brief description of nature, size, design, and method of operation.<br>Identify each point of emission for each hazardous air pollutant.<br>Statement of whether you're a major or area source.  | §63.1368(b); §63.9(b)                         |
| <b>Application for Approval of Construction or Reconstruction</b> | Before construction or reconstruction   | Applicant's name and address.<br>Notification of intent to construct or reconstruct.<br>Address (physical location) of the facility.<br>Identify the standard you're subject to.<br>Date that you expect to start construction or reconstruction.<br>Date that you expect to finish construction or reconstruction.<br>Type and amount of HAP you're emitting or expect to emit.<br>For construction, description of proposed nature, size, design, method of operation and emission controls and other information under §63.5(d)(2).<br>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 . . . |
|---|------------------------------------|--|---|
| <b>Precompliance Plan</b>                       | 6 months before compliance data    | <p>Requests for approval to use alternative monitoring parameters.</p> <p>Description of your daily or per batch demonstrations to verify that control devices with inlet HAP emissions &lt;1 ton/yr are operating as designed.</p> <p>Data and rationale used to set monitoring parameter levels for conditions other than the peak case.</p> <p>Your Pollution Prevention Demonstration Summary.</p> <p>Data and rationale for engineering assessments.</p> <p>Your Operation and Maintenance Plan for fabric filters that are monitored with bag leak detectors.</p>  | §63.1368(e)                                   |
| <b>Notification of Compliance Status Report</b> | 150 days after the compliance date | <p>Results of applicability determinations</p> <p>Results of emission profiles, performance tests, engineering analyses, design evaluations or other calculations used to demonstrate compliance</p> <p>Anticipated periods of planned routine maintenance for control devices used to comply with Option 4A, B, C, or E for storage vessels</p> <p>Provide the following information for each group of processes subject to the equipment leak provisions: [§63.1363(h)(2)(i)]</p> <ul style="list-style-type: none"> <li>• identification of the group of processes.</li> <li>• approximate number of each equipment type (e.g., valves, pumps) in organic HAP service, excluding equipment in vacuum service.</li> <li>• method of compliance with the standard (e.g., “monthly leak detection and repair” or “equipped with dual mechanical seals”).</li> </ul> <p>Provide the following information for each process subject to the equipment leak requirements for pressure testing:</p> | §63.1368(f)                                   |

**TABLE 8-2.** (cont'd)

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| If you are submitting a(n) . . .                  | then submit buy . . .   | and include the following information . . .  | according to these sections of the rule . . . |
|---|---|--|---|
|   |   | <p>[§63.1363(h)(2)(ii)]</p> <ul style="list-style-type: none"> <li>• products or product codes subject to the equipment leak provisions</li> <li>• planned schedule for pressure testing when equipment is configured for production of products subject to the equipment leak provisions</li> </ul> <p>Provide the following information for each process subject to the equipment leak requirements for enclosed-vent process units:<br/>[§63.1363(h)(2)(iii)]</p> <ul style="list-style-type: none"> <li>• process identification</li> <li>• 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</li> </ul> |   |
| <b>Semi-annual Periodic Reports</b>               | Semi-annually no later than 60 days after the end of the 6-month reporting period |  | §63.1368(g)                                   |
| <b>Startup, Shutdown, and Malfunction Reports</b> |   |  | §63.1368(i)                                   |
| <b>Equipment Leak Reports</b>                     | Semi-annually--submit with the Periodic reports                                   | <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• the number of pumps in light liquid service and agitators in gas/vapor or light liquid service for which leaks were detected,</li> </ul>  | §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 . . . |
|----------------------------------|-----------------------|--|---|
|                                  |                       | <p>the percent leakers, and the total number of pumps and agitators monitored</p> <ul style="list-style-type: none"> <li>• the number of pumps in light liquid service and agitators in gas/vapor or light liquid service for which leaks were not repaired</li> <li>• the number of compressors for which leaks were detected</li> <li>• the number of compressors for which leaks were not repaired</li> <li>• 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</li> <li>• 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</li> <li>• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible.</li> <li>• the results of all monitoring to show compliance with the provisions for: <ul style="list-style-type: none"> <li>&lt; compressors designated to operate with an instrument reading on less than 500 ppm [§63.164(i)]</li> <li>&lt; pressure relief devices in gas/vapor service operated with an instrument reading of less than 500 ppm [§63.165(a)]</li> <li>&lt; inspections of closed vent systems [§63.172(f)]</li> </ul> </li> <li>• 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.</li> </ul> |   |

**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 . . . |
|---------------------------------------|-----------------------|--|---|
|                                       |                       | <ul style="list-style-type: none"> <li>• if applicable, notification of a change in connector monitoring alternatives for connectors that have been opened or have broken seals.</li> </ul>  |   |
|                                       |                       | <p>You must submit the following information in your periodic reports for valves in gas/vapor service and light liquid service:</p>  | §63.1363(e)(5)(vi)                            |
|                                       |                       | <ul style="list-style-type: none"> <li>• valve reassignments occurring during the reporting period</li> <li>• results of the semiannual overall performance calculation</li> </ul>   |   |
|                                       |                       | <p>If you elect to conduct pressure tests according to §63.178(b), your Periodic report must include all of the following information:</p>   | §63.1363(h)(3)(iii)                           |
|                                       |                       | <ul style="list-style-type: none"> <li>• product process equipment train identification</li> <li>• the number of pressure tests conducted</li> <li>• the number of pressure tests where the equipment train failed either the retest or two consecutive pressure tests</li> <li>• explanation for any delay of repair</li> <li>• the results of all monitoring to determine compliance with the standards for inspection of closed-vent systems</li> </ul> |   |
|                                       |                       | <p>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.</p>  | §63.1363(h)(3)(iv)                            |
| <b>Reports of Emissions Averaging</b> |                       |  | §63.1368(k)                                   |
| <b>Notification of Process Change</b> |                       |  | §63.1368(h)                                   |



### 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.

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**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.”

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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](http://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:

| <b>If a new rule is effective<sup>1,2</sup><br/>and you have . . .</b> | <b>Then . . .</b>   |
|--|---|
| 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 |

<sup>1</sup> 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).

<sup>2</sup> 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](http://www.epa.gov/ttn/oarpg/t5main.html) and [www.epa.gov/oar/oaqps/permits/](http://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](http://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.

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*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.*

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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](http://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."

## 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:

- C EPA's **Unified Air Toxics Website** ([www.epa.gov/ttn/uatw](http://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](http://www.epa.gov/ttn/uatw/pest/pestpg.html).

- C 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.

- C **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.

- C **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\***

| <b>EPA Region</b>  | <b>States Covered</b>                  | <b>Division Phone and Address</b>  | <b>Division Phone / RO Home Page</b>  |
|--------------------|--|--|---|
| <b>Region I</b>    | CT, ME, MA, NH, RI & VT                | Office of Environmental Stewardship (SEA) <b>or</b><br>Office of Ecosystem Protection (CAP)<br>1 Congress Street, Suite 1100<br>Boston, MA 02114-2023<br>Attention: NESHAP (MACT) Contact                        | (617) 918-1510<br><br><a href="http://www.epa.gov/region1">www.epa.gov/region1</a>                    |
| <b>Region II</b>   | NJ, NY, Puerto Rico & Virgin Islands   | Division of Environmental Planning and Protection<br>290 Broadway<br>21st Floor<br>New York, NY 10007-1866   | (212) 637-3735<br><br><a href="http://www.epa.gov/region2">www.epa.gov/region2</a>                    |
| <b>Region III</b>  | DE, MD, PA, VA, WV & DC                | Air Protection Division, 3AP111<br>1650 Arch Street<br>Philadelphia, PA 19103-2029   | (215) 814-2056<br><br><a href="http://www.epa.gov/region3">www.epa.gov/region3</a>                    |
| <b>Region IV</b>   | AL, FL, GA, KY, MS, NC, SC & TN        | Air, Pesticides and Toxics Management Division<br>Atlanta Federal Center<br>61 Forsyth Street<br>Atlanta, GA 30303-3104  | (404) 562-9077<br><br><a href="http://www.epa.gov/region4">www.epa.gov/region4</a>                    |
| <b>Region V</b>    | IL, IN, MI, WI, MN & OH                | Air and Radiation Division<br>77 West Jackson Blvd.<br>Chicago, IL 60604-3507  | (312) 353-2212<br><br><a href="http://www.epa.gov/region5">www.epa.gov/region5</a>                    |
| <b>Region VI</b>   | AR, LA, NM, OK & TX                    | Multimedia Planning and Permitting Division (6PD) <b>or</b> Compliance Assurance & Enforcement Division (6EN)<br>1445 Ross Avenue<br>Dallas, TX 75202-2733   | (214) 665-7250/<br>(214) 665-7220<br><br><a href="http://www.epa.gov/region6">www.epa.gov/region6</a> |
| <b>Region VII</b>  | IA, KS, MO & NE                        | Air, RCRA and Toxics Division<br>901 North 5 <sup>th</sup> Street<br>Kansas City, KS 66101   | (913) 551-7020<br><br><a href="http://www.epa.gov/region7">www.epa.gov/region7</a>                    |
| <b>Region VIII</b> | CO, MT, ND, SD, UT & WY                | Office of Enforcement, Compliance and Environmental Justice (ECEJ) <b>or</b><br>Office of Partnerships and Regulatory Assistance (OPRA)<br>999 18th Street<br>1 Denver Place, Suite 500<br>Denver, CO 80202-2405 | (303) 312-7028/<br>(303) 312-6294<br><br><a href="http://www.epa.gov/region8">www.epa.gov/region8</a> |
| <b>Region IX</b>   | AZ, CA, HI, NV, American Samoa, & Guam | Air Division<br>75 Hawthorne Street<br>San Francisco, CA 94105   | (415) 744-1219<br><br><a href="http://www.epa.gov/region9">www.epa.gov/region9</a>                    |
| <b>Region X</b>    | AK, ID, WA & OR                        | Office of Air Quality<br>1200 Sixth Avenue<br>Seattle, WA 98101  | (206) 553-1505<br><br><a href="http://www.epa.gov/region10">www.epa.gov/region10</a>                  |

\* Information subject to change without notice. For the latest information, please visit the Regional Office Website.

## **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](http://www.epa.gov/ttn/uatw/pest/pestpg.html).

## Chapter 11 - Supplemental information for State and local agencies and Tribes

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### 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.

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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](http://www.epa.gov/ttn/uatw/eparules.html), scroll down until you see "MACT Implementation Strategy." The cookbook is in Appendix G of this document.

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### 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    |

| 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    |

## **Estimated National HAP Emission Reductions**

[Pending]

## Appendix A- Subpart MMM, final rule

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(Copy of rule can be found at [www.epa.gov/ttn/uatw/pest/pestpg.html](http://www.epa.gov/ttn/uatw/pest/pestpg.html))

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| 16. ABSTRACT<br>National emissions standards to control emissions of HAP from major sources producing pesticide active ingredients were published in <i>Federal Register</i> 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 <a href="http://www.epa.gov/ttn/uatw/pest/pestpg.html">www.epa.gov/ttn/uatw/pest/pestpg.html</a> . |   | 14. SPONSORING AGENCY CODE<br>EPA/200/04                          |
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