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

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

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What is the legal status of this guide?

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

When using this document, remember that it is not legally binding and does not 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 and amended 6/3/02, 9/20/02, and 11/21/02**) or any State, local or tribal rules that may apply to your facility.

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Thank You

The 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. The development team had the following members:

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List of Acronyms

ADI	Applicability Determination Index
AMR	Actual mass removal
APCD	Air pollution control device
ATW	Air Toxics Website
BACT	Best available control technology
CAA	Clean Air Act
CFR	Code of Federal Regulations
CEMS	Continuous emissions monitoring system
Cl_2	Chlorine
CMS	Continuous monitoring system
DOT	Department of Transportation
EFR	External floating roof
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
Fr	Fraction removed
GPO	Government Printing Office
HAP	Hazardous air pollutant
HCl	Hydrochloric acid
HDPE	High density polyethylene
HON	Hazardous Organic NESHAP
IDS	Individual drain system
IFR	Internal floating roof
LAER	Lowest achievable emissions rate
LDAR	Leak detection and repair
MACT	Maximum achievable control technology
NEPIS	National Environmental Publications Internet Site
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOCSR	Notification of compliance status report
NPDES	National Pollution Discharge Elimination System
NSCEP	National Service Center for Environmental Publications
NSPS	New Source Performance Standards
OECA	Office of Enforcement and Compliance Assurance
PAI	Pesticide active ingredient
POD	Point of determination
PS	Performance specification
PTE	Potential to emit
PUG	Process unit group
QA/QC	Quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RMR	Required mass removal
SBAP	Small Business Assistance Program
SSMP	Startup, shutdown, and malfunction plan
STAPPA/ ALAPCO	State and Territorial Air Pollution Program Administrators and Local Air Pollution Control Officials
TOC	Total organic compounds

List of Acronyms (cont'd)

TSDF	Treatment, storage, and disposal facility
TTN	Technology Transfer Network

Why should I use this implementation document?

This document can help facility owners and operators understand the National Emission Standards for Hazardous Air Pollutants (NESHAP) for ***Pesticide Active Ingredient* (PAI) *Production*** (also known as Subpart MMM) by helping you determine:

- if the rule applies to your facility and process
- what compliance options are available
- how to establish initial compliance
- how to monitor ongoing compliance
- what records to keep
- what information to report
- dates by which you must meet requirements
- how to perform required calculations

What provisions does this document describe?

This document describes the standards and compliance options for process vents, storage vessels, wastewater systems, and equipment leaks except for the emissions averaging and pollution prevention options.

Is there anything I should know before using this document?

When using this document, remember that it **does not** replace the final rule but summarizes the requirements published in the final rule and its amendments. You should keep up with any new requirements 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.gpoaccess.gov/fr/index.html*.

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

You can download a copy of the amended final rule as published in the Code of Federal Regulations at the GPO website: *www.gpoaccess.gov/cfr/retrieve.html*.

How do I get copies of this document?

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

- EPA's Office of Enforcement and Compliance Assurance website (*www.epa.gov/compliance/assistance/sectors/index.html*). Look under Pesticide Active Ingredients.
- National Service Center for Environmental Publications (www.epa.gov/ncepiham/index.htm). Look under Online Publications, and then the National Environmental Publications Internet Site (NEPIS) and EPA document number 305-B-05-001.
- EPA's Technology Transfer Network Air Toxics Website (*www.epa.gov/ttn/atw*). Look under Rules and Implementation, national emission standards for hazardous air pollutants, pesticide active ingredient, or *www.epa.gov/ttn/atw/pest/pestpg.html*.

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To serve you better, we have included a survey on the usefulness of this document. If you would like to participate, please fill out the survey on page 1-3 and return it to the address indicated. We will keep your responses confidential if you desire, but use them to help us improve future documents.

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

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Return survey to: ATTN: Pesticide Active Ingredient Implementation Contact, U.S. Environmental Protection Agency (EPA), Mail Code 2223A, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, **or** fax (202) 564-0050

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 from facilities subject to the rule. It also applies to chlorine and hydrogen chloride emissions, and it applies to particulate matter emissions from certain PAI product dryers and bag dumps. Our research indicates that the **primary** organic HAP emissions from PAI production include the following:

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

How do I know if I am subject to this rule?

You are subject to this rule if your facility 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 are **not** subject to this rule if you have a federally 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 would not 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 Air Toxics Website (ATW) at: *http://www.epa.gov/ttn/atw/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) and definition of "PAI process unit" in §63.1361]:

- 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 dedicated PAI process unit that meets **both** of the following criteria:
  - construction commenced after November 10, 1997, or reconstruction commenced after September 20, 2002
  - has the potential to emit 10 tons/yr of any one HAP or 25 tons/yr of combined HAP

Definition. *Dedicated PAI process unit* means a PAI process unit constructed from equipment that is fixed in place and designed and operated to produce only a single product or co-products. The equipment is not designed to be reconfigured to create different process units, and it is not operated with different raw materials so as to produce different products.

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

If you...	And...	Then...
add a dedicated PAI process unit at a major source after November 10, 1997	you have an existing affected source, and the potential to emit (PTE) for the added process unit is less than 10 tons/yr of individual HAP or 25 tons/yr of total HAP at the time the dedicated PAI process unit is added	your added process unit becomes part of the existing affected source and is subject to existing source standards
	you have an existing affected source, and the PTE for the added process unit exceeds either HAP threshold (10 or 25 tons/yr), at the time the dedicated PAI process unit is added	the added dedicated PAI process unit is a new affected source and subject to the new source standards (all other PAI process units that were part of the existing affected source remain subject to existing source standards).
	you have no existing affected source at the time the dedicated PAI process unit is added	regardless of the PTE, your added dedicated PAI process unit becomes a new affected source that is subject to the new source standards
add a PAI process unit that runs in nondedicated equipment at a major source	you have an existing affected source	your added PAI process unit becomes part of the existing affected source and is subject to existing source standards regardless of whether you also have a dedicated PAI process unit that is a new affected source
	you have only a new affected source at the time the nondedicated PAI process unit is added	your added PAI process unit becomes part of the new affected source and is subject to new source standards
	you do not have an affected source at the time the nondedicated PAI process unit is added, and you had no nondedicated equipment on November 10, 1997	you have constructed an affected source and the PAI process unit is subject to new source standards

If you...	And...	Then...
	you do not have an affected source at the time the nondedicated PAI process unit is added, but construction of the nondedicated equipment began before November 10, 1997	your added PAI process unit becomes an existing affected source and is subject to existing source standards
add nondedicated equipment to a major source	you already have an existing affected source with nondedicated equipment that you use to make PAI's	all PAI process units at the affected source remain subject to existing source standards
add equipment to a dedicated PAI process unit at a major source	you already have an existing affected source	the dedicated PAI process unit remains part of the existing affected source and subject to the existing source standards
replace equipment in PAI process units at an existing affected source	the amount of equipment replaced in a dedicated PAI process unit meets the definition of reconstruction	the dedicated PAI process unit becomes a new affected source that is subject to new source standards, and all other PAI process units remain subject to existing source standards
	the amount of equipment replaced throughout the entire affected source meets the definition of reconstruction	the affected source becomes a new affected source, and all PAI process units are subject to new source standards

When do I need to comply?

If your facility is an existing affected source, you must comply by **December 23, 2003**. This date is 4.5 years after the rule's effective date of June 23, 1999 [§63.1364(a)]. The effective date is the date the final rule was published in the Federal Register. The compliance date in the final rule was 6/23/02, but the compliance date was extended by 18 months in amendments published on 6/3/02. 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.

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?" (page 2-2) for more information.

If your affected source is new or reconstructed, except for a new affected source that consists of a reconstructed dedicated PAI process unit, you must comply upon startup of your operations or on 6/23/99, whichever is later. [§63.1364(b)] If your affected source is a dedicated PAI process unit for which reconstruction commenced after September 20, 2002 you must comply upon startup. See Figures 2-1 and 2-2 for detailed compliance timelines.

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) ...	***Then ...***
Initial Notification Report of Relevancy (§63.1368(b)) & (§63.9(b)(2))	Submit by ***10/23/99*** or within 120 days after source becomes subject to rule.
Compliance Extension Request (§63.1364(a)(2)(i))	Submit no later than ***8/25/03*** or 120 days before compliance date.
Precompliance Plan (§63.1368(e))	Submit by ***9/23/03*** or 3 months before compliance date.
Compliance Date (§63.1364(a)(l))	Must comply by ***12/23/03***
Site-Specific Test Plan and Notification of Planned Performance Test (§63.1368(m))	Submit ***60 days*** before Performance Test*
Initial Notification of Compliance Status (NOCS) (§63.1368(f))	Submit by ***5/21/04***
Periodic Report (§63.1368(g))	Submit by ***1/17/05*** and every 6 months thereafter.
Startup, Shutdown, Malfunction Report (§63.1368(i))	Submit by ***1/17/05*** 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 150 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

If you are submitting a(n) ...	Initial Notification Report of Relevancy (§63.1368(b)), (§63.9(b)(2)), and (§63.5(d)(1)	Precompliance Plan (§63.1368(e))	Compliance Date (§63.1364(b))	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))
Then ...	Submit by ***10/23/99*** or within 120 days after source becomes subject to rule.	Submit with the application for approval of construction or reconstruction.	Comply on ***6/23/99*** or upon startup, whichever is later.*	Submit ***60 days*** before Performance Tests**	Submit ***150 days*** after effective date or initial startup.	Submit ***240 days*** after initial NOCS' due date and every 6 months thereafter.	Submit ***240 days*** after initial NOCS' due date and every 6 months thereafter.***

* Compliance date for a reconstructed dedicated PAI process unit is 9/20/02 or startup, whichever is later.

** Performance tests shall be conducted within 150 days after the effective date, or within 150 days after startup of a new source that has an initial startup after the effective date of the rule. (§63.7(a)(2)(i) and (ii))

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

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 are subject to Subpart MMM if your material:

- meets all of the conditions in the definition of PAI in §63.1361 of Subpart MMM (see **page 2-1** for the definition of PAI)
- is "**primarily used**" as a PAI

Procedures to determine primary use are described below.

Your material is not subject to Subpart MMM if it meets **any** of the following criteria: [definition of PAI in §63.1361]

- it is an inorganic compound
- it is used to produce active ingredients that are not identified by product classification codes 01, 21, 02, 04, 44, 07, 08, or 16 in block 19 on EPA form 3540-16, the Pesticide Report for Pesticide-Producing Establishments (e.g., materials classified as disinfectants, rodenticides, and water purifiers)

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 is subject to this rule.
- **Primary product** refers to the predominant product produced in a process unit group (PUG), and is used to determine the applicable requirements for all PAI process units in the group. Process unit groups are part of an alternative means of compliance for sources with nondedicated equipment that is subject to multiple MACT rules (see "How is nondedicated equipment regulated" later in this chapter for a discussion of the PUG concept).

Definition. *Process unit group* means a group of process units that manufacture PAI's and products other than PAI's by alternating raw materials or operating conditions, or by reconfiguring process equipment. A process unit group is determined according to the procedures specified in §63.1360(g).

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 [from the definition of “PAI process unit” in §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 2-9.** 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 **is not** 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 is the same PAI process unit. Similarly, if the same equipment is used to produce different PAIs at different times, it constitutes a different PAI process while it is used to make each of the products. When you use the equipment (in the same configuration or a different one) to produce a non-PAI, the equipment does not constitute a PAI process unit.

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

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

- the PAI process (i.e., the processing equipment such as mixing vessels, reactors, and distillation units)
- associated storage vessels, as determined under §63.1360(f)
- connected piping and ducts
- open equipment used to convey and store liquids, as defined under §63.1362(k)
- 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 an organic compound that meets **all** of the following criteria [§63.1361]:

- it is further processed or modified in one or more additional 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 is not **stored** before the next processing step (see next paragraph)
- it is not already subject to 40 CFR 63, Subpart F

An intermediate is **stored** if it is 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 is 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 cannot 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)]:

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. Examples of how to apply the PUG concept are illustrated for several case studies in EPA 305-B-04-001.

① First, categorize the nondedicated equipment into one or more **process unit groups** (see the definition of process unit group on **page 2-7**)

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 another applicable MACT rule as a means of demonstrating compliance with Subpart MMM, 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)(2)]

Exceptions to the Subpart GGG provision are listed in §63.1360(h)(2).

- if the **primary** product of a process unit group is a material that is 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)(3)].

Note: Your primary product is the type of product (e.g., pharmaceutical products, PAI's, etc.) 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)(1)(iv)].

This alternative does not address situations in which the primary product of a process unit group is PAI's, 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. For example, §63.2535(l)(3)(ii)(B) of the Miscellaneous Organic Chemical Manufacturing NESHAP (Subpart FFFF) allows compliance with Subpart MMM for miscellaneous organic chemical manufacturing processes within the process unit group if the primary product of the process unit group is determined to be pesticide active ingredients.

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 each 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 other MACT standards on the effective date of Subpart MMM

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

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 emission limit, design, or work practice standard that otherwise applies

- you follow the procedures in your startup, shutdown, and malfunction plan as specified in §63.1367(a)(3)
- you implement, to the extent reasonably available, means to prevent or minimize emissions (e.g., identify control devices, work practices, pollution prevention measures, etc.) in your startup, shutdown, and malfunction plan [§63.1360(e)(4)]
- 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 [§63.1360(e)(3)]:

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

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: [§63.1360(i)]

If, for the following emission point...	Subpart MMM overlaps with the following rule...	Then ...[a]
All emission points	Other MACT rules in 40 CFR part 63 (e.g., the HON, pharmaceuticals, etc.)[b]	• Choose, to the extent the subparts are consistent, under which subpart you will maintain your records and reports • For 40 CFR 63, Subpart A (General Provisions) check Table 1 of Subpart MMM final rule to determine which Subpart A requirements apply to your emission point • Develop a process unit group as described in the section "How is nondedicated equipment regulated" on page 2-10
Equipment leaks	Subpart I in 40 CFR part 63	Comply with **either** the provisions of Subpart MMM or the provisions of Subpart H of 40 CFR part 63
Storage vessels (Group 1 and 2)	Subpart Kb of 40 CFR part 60 [NSPS]	Comply **only** with the provisions of Subpart MMM

If, for the following emission point...	Subpart MMM overlaps with the following rule...	Then ...[a]
Process vents	Subparts III, NNN, or RRR of 40 CFR part 60 [NSPS]	Comply **only** with Subpart MMM **if** the process vent subject to the other subpart is controlled to 98 percent. Otherwise, comply with both Subpart MMM and Subparts III, NNN and RRR as applicable.
Process vents, equipment leaks, waste management units	Subparts AA, BB, and CC of 40 CFR parts 264 and 265 [RCRA]	Comply **either** with the monitoring, recordkeeping, and reporting requirements in Subpart MMM, or the other subparts. However, you must report **all** excursions as required in §63.1368(g) of Subpart MMM
Wastewater streams	40 CFR parts 260 through 272 [RCRA]	Comply with whichever rule has the more stringent control, testing, monitoring, recordkeeping, and reporting requirements

[a] Identify which subpart you have 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.

[b] An offsite reloading or cleaning facility that supports railcars or tank trucks that are used in your vapor balancing alternative for storage tanks need comply only with the provisions of the subpart of 40 CFR part 63 that applies to their facility.

What is exempt from the rule?

Section 63.1360(d) specifies that the rule **does not** apply to **any** of the following:

- research and development facilities
- PAI process units that are subject to 40 CFR 63, Subpart F
- ethylene production
- coal tar distillation
- 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 **are not** considered to be part of the PAI process unit:

- formulation of pesticide products (i.e., the mixing or blending of active ingredients with each other or inert ingredients)
- QA/QC laboratories

What is a process vent?

A **process vent** is a point of emission from processing equipment to the atmosphere or a control device [§63.1361]. The vent may be the release point for either of the following:

- an emission stream associated with an individual unit operation, or
- emission streams from multiple unit operations that have been manifolded together into a common header.

Examples of process vents include, but are not limited to, vents on the following:

- condensers used for product recovery
- bottom receivers
- surge control vessels
- reactors
- filters
- centrifuges
- process tanks
- dryers

Vents on storage vessels, wastewater emission sources, and equipment leaks are not process vents. See "What process vents are exempt?" on page 3-2 for the minimum HAP concentration that an emission stream must have to be a process vent.

What process vents does Subpart MMM apply to?

Subpart MMM applies to all process vents that:

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

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

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

  Note: The uncontrolled HCl/Cl_2 threshold includes HCl/Cl_2 from the process itself as well as HCl/Cl_2 created in combustion control devices that are used to control emissions of halogenated organic compounds.

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 operations) or the operating hours per year (for continuous operations) to demonstrate that annual emissions are below the limit for Group 2 processes.

Note: Particulate matter emissions from process vents also require control if the vents are from product dryers that dry a PAI or integral intermediate that is also a HAP or a bag dump that is used to add a solid HAP material to the process (excluding HAP present only as impurities).

What process vents are exempt?

A vent **is not** a process vent if the undiluted and uncontrolled emission stream released through the vent contains less than 50 ppmv HAP.

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

If your Group 1 process vents discharge to **any** of the following control devices, they are **exempt** from the initial compliance demonstrations, monitoring provisions, and associated recordkeeping and reporting requirements under Subpart MMM [§§63.1362(l), 63.1365(a)(4), and 63.1366(b)(1)(ix)(B)]. However, all other Subpart MMM provisions apply for these processes (e.g., requirements to determine applicability and standards for storage tanks, wastewater, and equipment leaks).

- A boiler or process heater burning hazardous waste for which you have:
  - 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 have:
  - been issued a final permit for the incinerator under 40 CFR part 270 and you are 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?

Compliance options are categorized by organic HAP emissions and HCl/Cl_2 emissions. The options are similar for existing and new sources. The main difference is higher percent reductions in organic HAP and HCl/Cl_2 emissions are required for vents at a new source under the following conditions:

- 98 percent reduction instead of 90 percent reduction for all organic HAP emissions, not just those from "large" vents.
- 99 percent reduction instead of 94 percent reduction in HCl/Cl_2 emissions if the uncontrolled emissions are >191 Mg/yr.

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

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:

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

- 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)]

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:

See Chapter 7 for example calculations used to identify a large vent.

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

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

TABLE 3-1. (cont'd)

If you have a(n)...	And your process vents are...	Then, for...	Your compliance options are...[a]
	Group 1 for HCl/Cl_2 (>6.8 Mg/yr/ process and ≤191 Mg/yr/ process)	any individual vent or any combination of vents	• reduce emissions to ≤20 ppmv (Option 7) • use the alternative standard (Option 8)
		the collective emissions from all vents not controlled by Option 7 or Option 8	reduce HCl/Cl_2 emissions by ≥94 percent (Option 9)
	Group 1 for HCl/Cl_2 (>191 Mg/yr/ process)	any individual vent or any combination or vents	• reduce emissions to ≤20 ppmv (Option 7) • use the alternative standard (Option 8)
		the collective emissions from all vents not controlled by Option 7 or Option 8	reduce HCl/Cl_2 emissions by ≥99 percent (Option 10)
New or existing source	a source of particulate matter emissions	the vent from each product dryer that drys a PAI or integral intermediate that is also a HAP	reduce particulate matter emissions to ≤0.01 gr/dscf (Option 11)
		the vent from each bag dump that is used to introduce a HAP solid to the process, excluding HAP present only as impurities	reduce particulate matter emissions to ≤0.01 gr/dscf (Option 11)
	Group 2 for organic HAP and/or HCl/Cl_2	the process	no control required, but recordkeeping is required to demonstrate compliance with the 0.15 Mg/yr threshold for organic HAP emissions and the 6.8 Mg/yr threshold for HCl/Cl_2 emissions

[a] For each option, emissions must be routed from the process vent to the control device through a closed-vent system.

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

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 total organic compounds (TOC) if you use a combustion device, or to ≤50 ppmv as TOC if you use a noncombustion device

Note: The outlet concentration when using a combustion device is the same as for Option 2, but the alternative standard requires monitoring with CEMS, whereas Option 2 requires an initial performance test (or design evaluation) and 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 do not fit the definition of a "large" vent, you have **four** compliance options available. For any individual vent or any combination of vents you may comply using **Option 2**, **Option 3**, or **Option 4** as described above. For the collective emissions from all vents not controlled by one of these three options, you must use:

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

Reduce uncontrolled organic HAP emissions by at least 90 weight percent

HCl/Cl_2 emissions - Existing Sources

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

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

Reduce uncontrolled HCl/Cl_2 emissions to an outlet concentration of $\leq$20 ppmv

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

Reduce uncontrolled HCl/Cl_2 emissions to an outlet concentration of $\leq$20 ppmv if you use a combustion device to control halogenated organic HAP, or to $\leq$50 ppmv if you control HCl/Cl_2 from the process using a noncombustion device.

Note: The outlet concentration is the same as for Option 7 if you use a combustion device to control halogenated organic compounds, but the alternative standard requires monitoring with CEMS, whereas Option 7 requires an initial performance test (or design evaluation) and monitoring of control device operating parameters.

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

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

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

Organic HAP emissions - New Sources

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

HCl/Cl_2 emissions - New Sources

Your compliance options for your new uncontrolled HCl/Cl_2 sources depends on the amount of your uncontrolled emissions. The two categories are: (1) $\geq$6.8 Mg/yr but <191 Mg/yr and (2) $\geq$191 Mg/yr. Regardless of the uncontrolled emissions, two of your options are to control any individual process vent or any combination of process vents using **Option 7** or **Option 8** as described above.

If the collective uncontrolled HCl/Cl_2 emissions from all of the process vents within a process are $\geq$6.8 Mg/yr and <191 Mg/yr, your third compliance option is to control the collective uncontrolled HCl/Cl_2 emissions from all Group 1 process vents that are not controlled by Option 7 or Option 8 using:

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

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

If, however, your uncontrolled HCl/Cl_2 emissions from the sum of all process vents within a process are ≥191 Mg/yr, your third compliance option is to control the collective uncontrolled HCl/Cl_2 emissions from all Group 1 process vents that are not controlled by Option 7 or Option 8 using:

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

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

What compliance options do I have for process vents that emit particulate matter?

You have **one** compliance option for particulate matter emissions at both existing and new sources. The compliance option applies to two types of processing equipment: (1) product dryers that dry a product or integral intermediate that is also a HAP and (2) bag dumps that are used to add a solid material that is also a HAP to the process, excluding solid materials that contain HAP only as impurities. Your compliance option is:

Particulate matter emissions from all other vents are exempt.

Option 11: reduce outlet concentration [§63.1362(e)(1) and (2)]

Reduce uncontrolled particulate matter emissions to outlet concentrations of ≤0.01 gr/dscf

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

Compliance with Group 2 emission limits

You demonstrate initial compliance with the Group 2 cutoffs for uncontrolled organic HAP and HCl/Cl_2 mass emission limits by projecting the annual uncontrolled emissions for the process. You do this by performing all of the following: [§63.1365(c)(1)(i), (ii)]

- calculating the uncontrolled emissions for each emission episode within the process
- summing the emissions for all emission episodes from batch operations and multiplying by the estimated annual number of batches
- summing the emissions for all emission episodes from continuous operations in the process and multiplying by the estimated operating time per year

  Note: One approach would be to estimate emissions from continuous operations on an hourly basis and then multiply by the number of operating hours per year.

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

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

Most of the calculations require you to estimate the HAP partial pressure. Section 63.1365(c)(2)(i)(A) describes options for estimating partial pressure. Chapter 7 provides example calculations and references to other documents with additional examples.

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

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

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

Compliance with <u>percent reduction</u> options (Option 1, 5, 6, 9, or 10)

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 process vent emissions from a process are controlled using a single control device that achieves at least 98% reductions, and a performance test is conducted over an entire batch cycle, then calculating the uncontrolled and controlled emissions for each emission episode is not necessary. §63.1365(b)(11)(iii)(D)

If all process vents from a process are controlled using a single control device, then calculating controlled emissions for each emission episode is not necessary.

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

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

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

For **condensers**, you calculate controlled emissions for each emission episode by doing **both** of the following: [§63.1365(c)(3)(iii)]

- determine the outlet gas temperature that, when used in the appropriate equation in §63.1365(c)(3)(iii), yields controlled emissions at the required percent reduction from uncontrolled levels
- measure the outlet gas temperature from the condenser and show that it is less than or equal to the temperature used in the calculation

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

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

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

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

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

Compliance with <u>outlet concentration</u> options (Option 2 or 7)

You demonstrate compliance with the 20 ppmv outlet concentration limit for organic HAP by measuring either total organic HAP or TOC [§63.1365(a)(6)].

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

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

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

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

Compliance using a <u>flare</u> (Option 3)

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 (i.e., the flare must produce no visible emissions, except for a period not to exceed 5 minutes in a 2-hour observation period).

- 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)]

Compliance with the alternative standard (Option 4 or 8)

You demonstrate initial compliance with the alternative standard by having the monitoring equipment installed and operational on the compliance date (see "How do I monitor to comply with the alternative standard" later in this chapter).

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

Compliance with particulate matter concentration limits (Option 11)

For bag dumps and product dryers, you demonstrate initial compliance with the outlet concentration limit of 0.01 gr/dscf by conducting a performance test using Method 5 of appendix A of 40 CFR part 60. [§63.1365(b)(7)]

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, and you must inspect closed-vent systems for leaks. 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 are <0.91 Mg/yr, you are 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.

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

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)].

Note: The periodic verification does not 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 $\geq$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 (xi). 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 are complying with the following compliance options...	And the total inlet HAP emissions to your control device are...	And you are using the following control device...	Then you must monitor this parameter...[a]	At this frequency...	According to these sections of the rule...
Options 1, 2, 5-7, 9, 10, and 11	<0.91 Mg/yr	any control device	parameter(s) specified in your approved precompliance plan that demonstrate the control device is operating as designed	at least once per day	§63.1366(b)(1)(i)
Options 1, 2, 5-7, 9, 10, and 11 (e.g., any % reduction or outlet concentration option, except the alternative standard[b], Option 4 or 8)	≥0.91 Mg/yr	Scrubber	liquid flow rate into scrubber or pressure drop across the scrubber	every 15 minutes	§63.1366(b)(1)(ii)
			also monitor the pH if the scrubber uses a caustic solution to remove acid gases	once per day	§63.1366(b)(1)(ii)
		Condenser	condenser outlet gas temperature	every 15 minutes	§63.1366(b)(1)(iii)
		Regenerative carbon adsorber	• regeneration frequency (time since the end of the last regeneration), and	• each regeneration cycle	§63.1366(b)(1)(iv)
			• temperature to which the bed is heated during regeneration, and	• each regeneration cycle	
			• temperature to which the bed is cooled, and	• within 15 minutes of completing the cooling phase of each regeneration cycle	
			• regeneration stream flow, and	• each regeneration cycle	
			• check for bed poisoning following manufacturer's specifications	• once per year	

TABLE 3-2. (cont'd)

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

TABLE 3-2. (cont'd)

If you are complying with the following compliance options...	And the total inlet HAP emissions to your control device are...	And you are using the following control device...	Then you must monitor this parameter...[a]	At this frequency...	According to these sections of the rule...
Option 4 or 8 (e.g., alternative standard)	All	Any control device	outlet TOC concentration and/or outlet HCl/Cl_2 concentration using CEMS meeting PS 8 or 9 of Appendix B of Part 60	every 15 minutes	§63.1366(b)(5)

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

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

How do I set monitoring parameter limits?

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

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. 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 does not 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 and for product dryers and bag dumps are defined in the standards themselves, and you may not set multiple limits when complying with these standards.

How do I monitor to comply with the alternative standard?

If you choose to comply with the alternative standard, your monitoring requirements include all of the following: [§63.1366(b)(5)]

- use CEMS to monitor outlet TOC and total HCl/Cl_2 concentrations at least once every 15 minutes

- typically, adjust the measured concentrations to account for supplemental gases that are added to the emission stream. For combustion devices, you may monitor residence time and firebox temperature as an alternative to adjusting the concentration

- 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 subpart A of 40 CFR part 63

Note: You do not have to monitor the total HCl/Cl_2 concentration if you know that the process (or control device) does not generate HCl/Cl_2.

Procedures for adjusting the outlet concentration to account for supplemental gases are specified in §63.1365(a)(7), and alternatives to correcting for supplemental gases are specified in §63.1366(b)(5)(ii)(A) and (B).

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 does not have to be from midnight to midnight.

A **block average** is only for vents from batch operations, and it is 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 venting streams that are not subject to the rule should not 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), for flares (option 3), and for fabric filters (option 11).

You must use daily averaging when complying with the alternative standard (option 4 or 8).

How do I inspect my closed-vent systems?

You must inspect closed-vent systems for leaks initially (by the compliance date) and annually. If your closed-vent system is constructed of ductwork, you must perform sensory inspections (i.e., use sight, sound, and smell to find indications of leaks) and perform inspections using Method 21 of appendix A in 40 CFR part 60. If your closed-vent system is constructed of hard-piping, only sensory inspections are required. [§63.1366(h)(2)(i) and (ii)]

Calibration procedures and other requirements for Method 21 inspections are specified in §63.1366(h)(3)(iii) through (vi). A leak is defined as a reading more than 500 ppm above background levels.

If necessary, you may designate parts of the closed-vent system as unsafe-to-inspect or difficult-to-inspect. These parts of the closed-vent system do not have to be inspected on the schedule described above. However, you must inspect the unsafe-to-inspect equipment when it is safe to do so (but not more frequently than annually), and you must inspect the difficult-to-inspect equipment at least once every 5 years. You must also have a written plan that states when you will perform these inspections.

Conditions that make parts of a closed-vent system unsafe-to-inspect or difficult-to-inspect are specified in §63.1366(h)(6) and (7).

Any leaks that you detect while conducting an inspection must be repaired within 15 calendar days from the date that you detected the leak, and you must make a first attempt at repair within 5 calendar days after the leak is detected. After making a repair, you must reinspect the equipment using Method 21 to verify that the repair was successful or to determine that the equipment is nonrepairable. [§§63.1366(h)(4) and 63.1367(f)(4)(iii)]

You may delay repair if the repair is technically infeasible without a shutdown or if the emissions from immediate repair are likely to be greater than the emissions from the unrepaired equipment..

Note: You do not have to inspect a closed-vent system that operates under negative pressure.

What records must I keep for my process vents?

For all compliance options, you must keep records of each measurement of a continuously monitored operating parameter or CEMS reading that demonstrates continuous compliance. [§63.1367(b)(1)] See Table 3-2 for a listing of the monitoring requirements. Recordkeeping requirements that relate to demonstrating compliance with the process vent standards are presented in **Chapter 8**.

What reports must I submit for my process vents?

Reporting requirements are presented in **Chapter 8**.

Checklists for Process Vent Inspections

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

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

If you follow...	And the total inlet HAP emissions to the control device are ...	And the process vent emission streams are conveyed by a closed-vent system to ...	Then use the following checklists[a]:	Starting on page ...
any option, except 3, 4, and 8	≥ 0.91 Mg/yr	a scrubber	3	3-28
		a condenser	4	3-30
		a regenerative carbon adsorber	5	3-32
		a nonregenerative carbon adsorber	6	3-34
		a thermal incinerator	7	3-35
		a catalytic incinerator	8	3-37
		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	3-39
		a fabric filter	10	3-41
3	≥ 0.91 Mg/yr	a flare	11	3-43
4 or 8	all	any control device	12	3-45
any option, except 4 and 8	< 0.91 Mg/yr	any control device	13	3-47

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

Checklist 1: Applicability (All Options)[a]

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

Note: Answer questions 1 through 3 for organic HAP and HCl/Cl_2 emissions, and answer question 4 for product dryers and bag dumps. *§63.1362(b)(2)(i), (3)(i), (4)(i), (5)(i), (e) and (l), §63.1365(a)(4), §63.1366(b)(1)(ix)(B)*

			Comments
1. Is the total organic HAP and HCl/Cl_2 content of your emission stream <20 ppmv? *Note: If you answer "yes" to this question for all emission streams from process vents in a process, do not continue; your process is not subject to control requirements for organic HAP or HCl/Cl_2. If you answer "no" for any emission streams from process vents within a process, proceed to question 2.*	☐ Yes	☐ No	
2. Are the total uncontrolled organic HAP emissions from all process vents in the process ≤ 0.15 Mg/yr, and are the total uncontrolled HCl/Cl_2 emissions from all process vents in the process ≤ 6.8 Mg/yr? *Note: If you answer "yes" to this question, do not continue; your process is not subject to control requirements for process vents. If you answer "no", proceed to question 3.*	☐ Yes	☐ No	
3. Does your process vent discharge to any of the following control devices:			
• a boiler or process heater burning hazardous waste for which you have:			
▸ been issued a final permit under 40 CFR part 270 and are complying with requirements of 40 CFR part 266, subpart H; or	☐ Yes	☐ No	
▸ certified compliance with the interim status requirements of 40 CFR part 266, subpart H?	☐ Yes	☐ No	
• a hazardous waste incinerator for which you have:			
▸ have been issued a final permit under 40 CFR part 270 and are complying with the requirements of 40 CFR part 264, subpart O; or	☐ Yes	☐ No	
▸ have certified compliance with the interim status requirements of 40 CFR part 265, subpart O?	☐ Yes	☐ No	
• a boiler or process heater with a design heat input ≥44 megawatts?	☐ Yes	☐ No	
• a boiler or process heater for which the emission stream is introduced with the primary fuel?	☐ Yes	☐ No	

Checklist 1: *(cont'd)*
Applicability (All Options)

				Comments
	Note: If you answer "yes" to using any of the control devices listed in this question, do not continue; you are exempt from the monitoring and associated recordkeeping and reporting requirements. If you answered "no" to all of the questions, your control device is subject to monitoring and recordkeeping; proceed to checklist 2 for closed-vent systems and to the appropriate checklist for your control device.			
4.	Does the emission stream contain particulate matter from either a bag dump that is used to add a HAP raw material or a product dryer that drys a HAP product or integral intermediate? *Note: If you answer "no" to this question, your product dryer or bag dump is not subject to control. If you answer "yes" to this question, your product dryer or bag dump is subject to control; proceed to checklist 10.*	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and Table 3-1.

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

Facility Name: ______________________________

Facility Location: ______________________________

Facility TRI ID #: ______________________________

Inspector: ______________________________

Date: ______________________________

Note: A “yes” response to a question in this checklist means compliance with that requirement, and a “no” response means noncompliance with the requirement. If the requirement is not applicable, indicate “N/A” in the comments column.

A. Monitoring Requirements			**Comments**
Note: Questions 2 through 4 do not apply for a closed-vent system that operates under negative pressure.			
1. If your closed-vent system has bypass lines that could divert a vent stream away from the control device and to the atmosphere, have you done one of the following:			
• used a flow indicator that takes a reading at least once every 15 minutes at the entrance of the bypass line? *§63.1362(j)(1)*	☐ Yes	☐ No	
• performed a monthly visual inspection that the bypass line valve is secured in the closed position with a car-seal or a lock-and-key type configuration? *§63.1362(j)(2)*	☐ Yes	☐ No	
Note: Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, rupture disks, and pressure relief valves needed for safety purposes are not subject to the monitoring requirements for bypass lines. §63.1362(j)			
2. If your closed-vent system is constructed of ductwork, do you conduct annual inspections for leaks using Method 21 in appendix A of 40 CFR part 60 and annual sensory inspections (based on sight, sound, and smell) for indications of leaks? *§63.1366(h)(2)(ii)(B) and (C)* *Note: When using Method 21, a leak is detected if the maximum reading is at least 500 ppm greater than the background level.* *Section 63.1366(h)(3)(ii) describes detection instrument performance criteria such as response factors, calibration procedures, and how to account for background levels.*	☐ Yes	☐ No	
3. If your closed-vent system is constructed of hard-piping, do you conduct annual sensory inspections for indications of leaks? *§63.1366(h)(2)(i)(B)*	☐ Yes	☐ No	
4. After repairing a leak, do you use Method 21 to confirm that the leak is successfully repaired or that it is nonrepairable? *§63.1367(f)(4)(iii)*	☐ Yes	☐ No	

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

B.	Recordkeeping and Reporting Requirements			Comments
	Note: Questions 3 through 8 do not apply for a closed-vent system that operates under negative pressure. *§§63.1366(h)(9) and (10)*			
1.	If you use a flow indicator to monitor your closed-vent system bypass line, do you have **all** of the following records: *§63.1367(f)(3)(i)*			
	• hourly flow indicator readings?	☐ Yes	☐ No	
	• times and durations of periods when the flow indicator is not operating?	☐ Yes	☐ No	
	• times and durations of periods when the vent stream is diverted from the control device?	☐ Yes	☐ No	
2.	If you use a seal mechanism to prevent diversion of emission streams through a bypass line, do you have **all** of the following records: *§63.1367(f)(3)(ii)*			
	• records that the monthly visual inspections of the seal or closure mechanism have been done?	☐ Yes	☐ No	
	• records of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out?	☐ Yes	☐ No	
	• records of any car-seal that has broken?	☐ Yes	☐ No	
3.	Do your records identify all parts of the closed-vent system that you designated as unsafe-to-inspect or difficult-to-inspect, and do the records explain why you assigned the designation?: *§63.1367(f)(1) and (2)*	☐ Yes	☐ No	
4.	Do you have a written plan for inspecting the unsafe-to-inspect parts of the closed-vent system as frequently as practicable (but not more than once per year)? *§§63.1366(h)(6)(ii) and 63.1367(f)(1)*	☐ Yes	☐ No	
5.	Do you have a written plan for inspecting the difficult-to-inspect parts of the closed-vent system at least once every 5 years? *§§63.1366(h)(7)(ii) and 63.1367(f)(2)*	☐ Yes	☐ No	
6.	Do your records indicate that the closed-vent system is inspected for leaks as follows: *§§63.1366(h)(2)(i)(B), (ii)(B), and (ii)(C)*			
	• an annual sensory inspection (i.e., visual, audible, or olfactory) for indications of leaks if the closed-vent system is constructed of hard-piping?	☐ Yes	☐ No	

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

B.	**Recordkeeping and Reporting Requirements**			**Comments**
	• both an annual sensory inspection and an instrument inspection using Method 21 in appendix A of 40 CFR part 60 if the closed-vent system is constructed of ductwork?	☐ Yes	☐ No	
	Note: When using Method 21, a leak is detected if the maximum reading is at least 500 ppm greater than the background level.			
	Section 63.1366(h)(3)(ii) describes detection instrument performance criteria such as response factors, calibration procedures, and how to account for background levels.			
7.	For each inspection (sensory or Method 21) during which no leaks were detected, do you have records of the following: *§63.1367(f)(5) and (6)*			
	• date of the inspection?	☐ Yes	☐ No	
	• statement that no leaks were detected?	☐ Yes	☐ No	
8.	For each inspection (sensory or Method 21) during which a leak is detected, do you have the following records: *§63.1367(f)(4)*			
	• identification of the leaking equipment?	☐ Yes	☐ No	
	• instrument identification number and operator name or initials (if the leak was detected using Method 21), or a record that the leak was detected by sensory observation?	☐ Yes	☐ No	
	• the date the leak was detected?	☐ Yes	☐ No	
	• the date of the first attempt to repair the leak?	☐ Yes	☐ No	
	Note: the first attempt to repair the leak must be no later than 5 calendar days after the leak is detected. §63.1366(h)(4)(i)			
	• maximum instrument reading measured by Method 21 after the leak is repaired or determined to be nonrepairable?	☐ Yes	☐ No	
	• all of the following if the leak is not repaired within 15 days after the leak was discovered:			
	▸ reason for the delay in repair?	☐ Yes	☐ No	
	▸ name, initials, or other form of identification of the person who decided repairs cannot be made without a shutdown?	☐ Yes	☐ No	
	▸ expected date of successful repair?	☐ Yes	☐ No	
	Note: delay of repair until the next shutdown is allowed if the repair is technically infeasible without a shutdown, or if the emissions from immediate repair would be greater than the fugitive emissions likely from delay.			

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

B.	Recordkeeping and Reporting Requirements			Comments
	• dates of shutdowns that occur while the equipment is unrepaired?	☐ Yes	☐ No	
	• date of successful repair of the leak?	☐ Yes	☐ No	
9.	Are records retained for at least 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
10.	Did you submit **all** of the following in your Periodic Report: *§63.1368(g)(2)(iii) and (xi)*			
	• records of all periods when the vent stream is diverted from the control device?	☐ Yes	☐ No	
	• records of all periods when the seal mechanism is broken, the bypass valve position has changed, or the key to unlock the bypass line valve was checked out?	☐ Yes	☐ No	
	• records of inspections during which a leak is detected?	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 3: Requirements for scrubbers (All options except 3, 4, 8, and 11)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirment, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirements** *§63.1366(b)(1)(ii) and (2)*			**Comments**
1.	Do you monitor scrubber liquid flow rate or pressure drop at least once every 15 minutes during the period in which the scrubber is controlling HAP from an emission stream?	☐ Yes	☐ No	
2.	Is the monitoring device used to determine the pressure drop certified by the manufacturer to be accurate to within a gauge pressure of ± 10 percent of the maximum pressure drop measured?	☐ Yes	☐ No	
3.	Is the monitoring device used for measurement of scrubber liquid flow rate certified by the manufacturer to be accurate to within ± 10 percent of the design scrubber liquid flow rate?	☐ Yes	☐ No	
4.	Is the monitoring device calibrated annually?	☐ Yes	☐ No	
5.	Do you monitor the pH of the effluent scrubber liquid at least once a day if the scrubber uses a caustic solution to remove acid emissions?	☐ Yes	☐ No	
6.	Do you average the continuous readings over the operating day or operating block?	☐ Yes	☐ No	
7.	If flow to the scrubber can be intermittent, did you install a flow indicator at the inlet or outlet of the scrubber and do you use it to identify periods of no flow?	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Did you submit **all** of the following in your Notification of Compliance Status Report:			
	• results of the initial performance test or design evaluation? *§63.1368(f)*(2)	☐ Yes	☐ No	
	• documentation to establish a minimum scrubber liquid flow rate or pressure drop as a site-specific operating parameter? *§63.1368(f)(3)*	☐ Yes	☐ No	
2.	Do you keep daily (or more frequent) records of the pH of the scrubber effluent if you use a caustic solution? *§63.1367(b)(1)*	☐ Yes	☐ No	
3.	Do you keep continuous records of the scrubber inlet flow rate or pressure drop? *§63.1367(b)(1)*	☐ Yes	☐ No	

Checklist 3: *(cont'd)*
Requirements for scrubbers (All options except 3, 4, 8, and 11)

B. Recordkeeping and Reporting Requirements			Comments
4. Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
• all monitoring data for all operating days or blocks when the average scrubber inlet flow rate or pressure drop is lower than the minimum established in your NOCSR or operating permit?	☐ Yes	☐ No	
• all monitoring data for all operating days or blocks when the average pH value of the scrubber effluent is lower than the minimum established in your NOCSR or operating permit?	☐ Yes	☐ No	
• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
• operating logs and operating scenarios for all operating days or blocks when the scrubber inlet flow rate, inlet pressure drop, or effluent pH is lower than the minimum established in your NOCSR or operating permit?	☐ Yes	☐ No	
• records of the information for CMS required by §63.10(c)(5) through (13) in subpart A to 40 CFR part 63 (General Provisions)	☐ Yes	☐ No	
5. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 4: Requirements for condensers (All options except 3, 4, 8, and 11)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

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

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

Checklist 4: *(cont'd)*
Requirements for condensers (All options except 3, 4, 8, and 11)

B. Recordkeeping and Reporting Requirements			Comments
• operating logs and operating scenarios for all operating days or blocks when the condenser average outlet temperature is higher than the maximum established in you NOCSR or operating permit?	☐ Yes	☐ No	
• records of the information for CMS required by §63.10(c)(5) through (13) in subpart A to 40 CFR part 63 (General Provisions)	☐ Yes	☐ No	
4. Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 5: Requirements for regenerative carbon adsorbers (All options except 3, 4, 8, and 11)[a]

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

Note: A "yes" response to a question in this checklist means compliance with the requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

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

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

Checklist 5: ***(cont'd)***
Requirements for regenerative carbon adsorbers (All options except 3, 4, 8, and 11)

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

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 6: Requirements for nonregenerative carbon adsorbers (All options except 3, 4, 8, and 11)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirements** *§63.1366(b)(1)(v) and (2)*			**Comments**
1.	Do you replace the carbon bed in the nonregenerative carbon adsorption system with fresh carbon on a regular schedule based on either of the following:			
	• monitor the outlet TOC concentration that indicates breakthrough?	☐ Yes	☐ No	
	• time interval established in your NOCS?	☐ Yes	☐ No	
2.	If you monitor the TOC concentration, do you take readings daily or at an interval no greater than 20 percent of the time required to consume the total carbon working capacity under peak-case conditions?	☐ Yes	☐ No	
B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Did you submit the results of the initial design evaluation in your Notification of Compliance Status Report? *63.1368(f)(2)*	☐ Yes	☐ No	
2.	Do you identify in your Periodic Reports all instances when the carbon bed is not replaced within the required time interval based on either the outlet TOC concentration or the time period established in your NOCSR or operating permit? *§63.1368(g)(2)*	☐ Yes	☐ No	
3.	If you monitor the outlet TOC concentration, do you maintain records of readings? *§63.1367(b)(1)*	☐ Yes	☐ No	
4.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 7: Requirements for thermal incinerators (All options except options 3, 4, 8, and 11)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

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

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

Checklist 7: ***(cont'd)***
Requirements for thermal incinerators (All options except options 3, 4, 8, and 11)

B.	**Recordkeeping and Reporting Requirements**			**Comments**
3.	Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data for all operating days or blocks when the average outlet temperature is lower than the minimum temperature specified in your NOCSR or operating permit?	☐ Yes	☐ No	
	• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
	• operating logs and operating scenarios for all operating days or blocks when the average operating temperature is lower than the minimum temperature specified in your NOCSR or operating permit?	☐ Yes	☐ No	
	• records of the information for CMS required by §63.10(c)(5) through (13) in appendix A of 40 CFR part 63 (General Provisions)?	☐ Yes	☐ No	
4.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 8: Requirements for catalytic incinerators (All options except 3, 4, 8, and 11)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

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

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

Checklist 8: ***(cont'd)***
Requirements for catalytic incinerators (All options except 3, 4, 8, and 11)

B.	**Recordkeeping and Reporting Requirements**			**Comments**
3.	Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are $\geq$1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data for all operating days or blocks when the average upstream temperature is lower than the minimum temperature specified in your NOCSR or operating permit, or the average temperature difference across the catalyst bed is lower than the minimum temperature difference specified in your NOCSR or operating permit?	☐ Yes	☐ No	
	• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
	• operating scenarios and operating logs for all operating days or blocks when the temperatures do not meet the limits specified in your NOCSR or operating permit?	☐ Yes	☐ No	
	• the information required by §63.10(c)(5) through (13) in appendix A of 40 CFR part 63 (General Provisions)	☐ Yes	☐ No	
3.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 9: Requirements for a boiler or process heater (All options, except 3, 4, 8, and 11)[a]

Facility Name: ____

Facility Location: ____

Facility TRI ID #: ____

Inspector: ____

Date: ____

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

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

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Did you submit **all** of the following in your Notification of Compliance Status Report:			
	• results of the initial performance test or design evaluation? *§63.1368(f)(2)*	☐ Yes	☐ No	
	• documentation to establish the minimum combustion zone temperature? *§63.1368(f)(3)*	☐ Yes	☐ No	
2.	Do you have continuous records of the combustion zone temperature? *§63.1367(b)(1)*	☐ Yes	☐ No	

Checklist 9: *(cont'd)*
Requirements for a boiler or process heater (All options, except 3, 4, 8, and 11)

B.	Recordkeeping and Reporting Requirements			Comments
3.	Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data for all operating days or blocks when the average combustion zone temperature is lower than the minimum temperature specified in your NOCSR or operating permit?	☐ Yes	☐ No	
	• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
	• operating scenarios and operating logs for all operating days or blocks when the average combustion zone temperature is lower than the minimum specified in your NOCSR or operating permit?	☐ Yes	☐ No	
	• records of the information for CMS required by §63.10(c)(5) through (13) in appendix A of 40 CFR part 63 (General Provisions)	☐ Yes	☐ No	
4.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 10: Requirements for fabric filters (Option 11)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirements** *§63.1366(b)(1)(xi)*			**Comments**
1.	Do you have a bag leak detection system that provides output of relative particulate matter emissions?	☐ Yes	☐ No	
2.	Does the bag leak detector have an alarm system that sounds when it detects an increase in particulate matter emissions over the level established during initial calibration?	☐ Yes	☐ No	
3.	Is the bag leak detector installed in either of the following locations:			
	• In each fabric filter compartment or cell of a positive pressure fabric filter?	☐ Yes	☐ No	
	• downstream of a negative pressure or induced air filter?	☐ Yes	☐ No	
4.	Do you calibrate the bag leak detection system as follows:			
	• Have you established the relative baseline output level (by adjusting the range and averaging period of the device)?	☐ Yes	☐ No	
	• Have you established the alarm set points and alarm delay time?	☐ Yes	☐ No	
	• Do you adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time only as described in your operation and maintenance plan?	☐ Yes	☐ No	
	• If you ever increase the sensitivity by more than 100 percent or decrease the sensitivity for more than 50 percent, do you also conduct a complete baghouse inspection to demonstrate that it is in good operating condition?	☐ Yes	☐ No	
	• Have you performed other calibration procedures based on available guidance from EPA or on the manufacturer's written specifications and instructions?	☐ Yes	☐ No	
5.	If the alarm on a bag leak detection system is triggered, do you begin to identify the cause of the alarm and take corrective action as specified in your corrective action plan within one hour of the alarm?	☐ Yes	☐ No	
B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	For each time the bag leak detection alarm is activated, do you have the following records: *§63.1367(b)(5)*			
	• date and time?	☐ Yes	☐ No	

Checklist 10: ***(cont'd)***
Requirements for fabric filters (Option 11)

B.	**Recordkeeping and Reporting Requirements**			**Comments**
	• brief explanation of the cause of the alarm?	☐ Yes	☐ No	
	• brief description of corrective action taken?	☐ Yes	☐ No	
2.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
3.	Do you have an operation and maintenance plan that describes proper operation and maintenance procedures (such as how to adjust the sensitivity or range, averaging period, alarm set point, and alarm delay time)? *§§63.1366(b)(1)(xi)(F)and 63.1367(e)(6)*	☐ Yes	☐ No	
4.	Do you have a corrective action plan that describes corrective actions to be taken, and the timing of those actions, when the particulate matter concentration exceeds the setpoint and activates the alarm? *§§63.1366(b)(1)(xi)(G) and 63.1367(e)(6)*	☐ Yes	☐ No	
5.	Do you submit bag leak detection records in your Periodic Reports if exceedances are $\geq$1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*	☐ Yes	☐ No	
6.	Do you submit updates to your corrective action in your periodic reports? *§63.1368(g)(2)(viii)*	☐ Yes	☐ No	

[a] Option 11 is described in the section "What compliance options do I have for process vents that emit particulate matter?" and in Table 3-1.

Checklist 11: Requirements for flares (Option 3)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

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

[a] Option 3 is described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

Checklist 12: Requirements for alternative standard (Option 4 and 8)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirements**			**Comments**
1.	Have you installed a CEMS to monitor the outlet TOC concentration and/or outlet HCl and chlorine concentration at least once every 15 minutes during the period in which the control device is controlling HAP from an emission stream? *§63.1366(b)(5)(i)*	☐ Yes	☐ No	
2.	Does your TOC monitor meet the requirements of Performance Specification 8 or 9 of appendix B of part 60? *§63.1366(b)(5)(i)*	☐ Yes	☐ No	
3.	Is your TOC monitor installed, calibrated, and maintained in accordance with §63.8 (the General Provisions in subpart A to 40 CFR part 63)? *§63.1365(b)(5)(i)*	☐ Yes	☐ No	
4.	If you introduce supplemental gases to the emission stream before a noncombustion device, do you perform both of the following: *§§63.1365(a)(7) and 63.1366(b)(5)(ii)*			
	• adjust the monitored outlet TOC and/or HCl/Cl_2 concentrations to account for the supplemental gases?	☐ Yes	☐ No	
	• evaluate the volumetric flow rate of all gas streams each time a new operating scenario is implemented?	☐ Yes	☐ No	
5.	If you introduce supplemental gases to the emission stream before a combustion device, do you perform either of the following: *§§63.1365(a)(7) and 63.1366(b)(5)(ii)* • adjust the monitored outlet TOC and/or HCl/Cl_2 concentrations to 3 percent oxygen, or • monitor residence time and firebox temperature?	☐ Yes	☐ No	
6.	Is the CEMS data reduced to operating day averages? *§63.1366(b)(2) and (8)*	☐ Yes	☐ No	
7.	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? *§63.1366(b)(2)(iii)*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you have a written quality control program with protocols for various operations including calibration procedures for the monitor? *§63.8(d)*	☐ Yes	☐ No	

Checklist 12: ***(cont'd)***
Requirements for alternative standard (Option 4 and 8)

B.	**Recordkeeping and Reporting Requirements**			**Comments**
2.	Have you recorded all maintenance and calibration checks performed on the CEMS? *§63.1367(b)(3)*	☐ Yes	☐ No	
3.	Do you have **all** of the following records: *§63.1367(a)(4) and 63.10(c)(1) through (14)*			
	• all required CEMS measurements (including monitoring data recorded during unavoidable CEMS breakdowns and out-of-control periods)?	☐ Yes	☐ No	
	• the date and time of each period when the CEMS is inoperative except for zero (low-level) and high-level checks?	☐ Yes	☐ No	
	• the date and time of each period when the CEMS is out of control (e.g., calibration drift exceeds specification, CEMS fails cylinder gas audit)?	☐ Yes	☐ No	
	• the date, start time, and end time of each period of excess emissions and parameter monitoring exceedances, including those occurring during startups, shutdowns, and malfunctions?	☐ Yes	☐ No	
	• the nature and cause of any malfunction of your monitor (if known), and corrective actions taken?	☐ Yes	☐ No	
	• the nature of any repairs or adjustments to a CEMS that was inoperative or out of control?	☐ Yes	☐ No	
	• the total process operating time during the reporting period?	☐ Yes	☐ No	
	• all procedures, including calibrations, that are part of your quality control program?	☐ Yes	☐ No	
4.	Do you have records indicating that you notified the Administrator at least 60 days before conducting a performance evaluation of your CEMS? *§63.1368(d) and 63.8(e)(2)*	☐ Yes	☐ No	
5.	Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data for all operating days or operating blocks when the average TOC or HCl/Cl_2 concentrations exceed 20 ppmv for combustion devices or 50 ppmv for noncombustion devices?	☐ Yes	☐ No	
	• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
	• operating logs and operating scenarios for operating days when the TOC and/or HCl/Cl_2 concentration exceeded the 20 ppmv or 50 ppmv limit?	☐ Yes	☐ No	
	• the records listed in "3" required by §63.10(c)(5) through (13)	☐ Yes	☐ No	

Checklist 12: *(cont'd)*
Requirements for alternative standard (Option 4 and 8)

B.	Recordkeeping and Reporting Requirements			Comments
6.	If you correct concentrations for supplemental gases from a noncombustion device, do you reevaluate the flow rates of supplemental gases and affected gas streams after each operating scenario change, and include the revised flows and the procedures used to estimate them in your periodic reports?	☐ Yes	☐ No	
7.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

[a] Options 4 and 8 are described in the section "What compliance options do I have my my Group 1 process vents?" and in Table 3-1.

Checklist 13: 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)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column. 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 11.

A.	**Monitoring Requirements** *§63.1366(b)(1)(i) and (2)*			**Comments**
1.	Do you periodically verify that the control device is operating properly by following the procedures specified in your approved Precompliance Plan?	☐ Yes	☐ No	
2.	If the verification procedure includes monitoring a parameter more than one time per day, do you average the daily readings?	☐ Yes	☐ No	
3.	Do you calibrate any monitoring instruments according to procedures in your approved Precompliance Plan?	☐ Yes	☐ No	
4.	If flow to the control device can be intermittent, did you install a flow indicator at the inlet or outlet of the control device and do you use it to identify periods of no flow?	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Did you submit a description of your daily or per batch verification procedures in your Precompliance Plan? *§63.1368(e)*	☐ Yes	☐ No	
2.	Do you submit **all** of the following in your Periodic Reports if the exceedances or excursions are ≥1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data for all operating days or blocks when the data show the control device is **not** operating as designed?	☐ Yes	☐ No	
	• identification of all operating days or blocks when insufficient monitoring data are collected?	☐ Yes	☐ No	
3.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

[a] The compliance options are described in the section "What compliance options do I have for my Group 1 process vents?" and in Table 3-1.

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Chapter 4 - Complying with requirements for storage vessels

What is a storage vessel?

A storage vessel is a tank or other vessel that is used to store organic liquids that contain one or more HAP [§63.1361]

What storage vessels are subject to subpart MMM?

Storage vessels that meet **all** of the following criteria are subject to 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)]
- are not exempt under the definition of storage vessel [§63.1361]

What storage vessels are exempt?

Any storage vessels meeting **either** of the following conditions are not subject to Subpart MMM:

- Group 2 storage vessels
- Vessels that are not part of a PAI process unit

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

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

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

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

- it is a wastewater storage tank
- it is a non-wastewater waste tank
- it is a process tank

What is a "Group 1" storage vessel?

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

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

Note: If you do not 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 **is not** part of a PAI process unit (and is not part of the affected source) if it is (was) 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: [§63.1360(f)(4)]

- what you actually used the vessel for during the year preceding June 23, 1999 (for existing sources) or

- what you expect to use the vessel for in the 5 years after startup (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 (i.e., an "intervening" storage vessel). [§63.1360(f)(3)]

> As an alternative, even if an intervening storage vessel is present, you may assign the storage vessel in the tank farm to whichever PAI process send the most material to, or receives the most material from, the storage tank in the tank farm. [§63.1360(f)(3)(ii)(C)]

You must **reevaluate** if your storage vessel is part of a PAI process unit after **any** of the following occur: [§63.1360(f)(5)]

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

What compliance options do I have for my storage vessels?

For any storage vessel covered under Subpart MMM, you have **five** 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: Vapor balance to a tank truck or railcar [§63.1362(c)(6)]:

Use a vapor balancing system that is designed and operated to route organic HAP vapors displaced from loading of the storage vessel to the railcar or tank truck from which the storage vessel is filled. No pressure relief device on the storage vessel, or on the railcar or tank truck, may open during loading or as a result of daily temperature changes.

Note that railcars and tank trucks that deliver HAP to your storage tank must be reloaded and cleaned at a facility that either vents emissions from the railcar or tank truck to a control device or vapor balances to the storage tank that contains the liquid that is transferred to the railcar or tank truck.

Option 5: 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 [§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

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

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

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

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

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

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

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

Note: The outlet concentration limits are the same for options 5B and 5E, but the alternative standard requires monitoring with CEMS, whereas Option 5B requires an initial performance test (or design evaluation) and monitoring of control device operating parameters.

For option 5, you are exempt from specification requirements during periods of planned routine maintenance of the control device that do not 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 are in compliance with **all** of the following:

- floating roof design features
- operating requirements
- inspection and measurement requirements (measurements are only for option 2)

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: [§63.1365(d)(3)]

- 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.

- the “maximum true vapor pressure of the total organic HAP in the stored liquid” is based on the Group 1 characteristics defined in §63.1361 rather than the criteria specified in Tables 5 and 6 of Subpart G.

See **Table 4-1** (page 4-7) 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.

Option 4: Vapor balancing

If you use the vapor balancing option to comply with Subpart MMM, you demonstrate initial compliance by installing a pressure relief device on the storage vessel that is set to no less than 2.5 psig. [§63.1362(c)(6)(v)]

Note that offsite cleaning and reloading facilities must provide you with written certification that they will meet all of the requirements of Subpart MMM. [§63.1362(c)(6)(vii)(A)]

Option 5: Compliance using a control device

(A) Percent reduction

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

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

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

Performance test procedures

If you send emissions from both a storage vessel and process vents to the same control device, you may demonstrate initial compliance for the storage vessel using the results of the test you conducted to show compliance with the process vent standards, provided that the test showed a percent reduction $\geq$95 percent [§63.1365(d)(1)(i)(C)]. See “How do I show initial compliance with the process vent requirements?” beginning on page 3-8 for more information.

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)].

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

If you are complying with ...	Then your...	Must...	And also must...
Option 1, 2, or 3 (Please note that you have more requirements for these options further in this table)	floating roof	be floating on the liquid surface except under the following conditions when being supported by the leg supports is allowed: • during initial fill • after the vessel has been completely emptied and degassed • before refilling	
	automatic bleeder vents	have gaskets	be closed at all times except when the roof is being floated off or landed on the leg supports
	rim space vents	have gaskets	be set to open only in the following conditions: • when the roof is being floated off the roof leg supports • when the pressure beneath the rim seal exceeds manufacturer's specifications
	openings in non-contact IFRs or EFRs (except for automatic bleeder vents and rim space vents)	project below the liquid surface	
	access hatches and gauge floats	have a gasketed cover	be closed at all times except for access
Option 1	openings in the IFR (except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains)	have a cover or lid with a gasket	be closed at all times except for access
	sample wells	have a slit fabric cover over at least 90 percent of the opening	
	ladder wells	have a gasketed sliding cover	

TABLE 4-1. (cont'd)

If you are complying with ...	Then your...	Must...	And also must...
	penetrations in the IFR for fixed roof columns	have **either** of the following: • a flexible fabric sleeve seal • a gasketed sliding cover	
Option 2	closure device between the vessel wall and roof edge	be **any** one of the following: • a liquid-mounted or metallic shoe primary seal with no secondary seal[b] • a vapor-mounted primary seal and a secondary seal[b] • a liquid-mounted or metallic shoe primary seal and a secondary seal	completely cover the space between the EFR and the vessel wall
Option 1 or 3	closure device between the vessel wall and the roof edge	be **any** one of the following: • a vapor-mounted seal[b] • a liquid-mounted seal • a metallic shoe seal • a double seal	completely cover the space between the IFR and the vessel wall

TABLE 4-1. (cont'd)

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

IFR = internal floating roof EFR = external floating roof

[a] 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.
[b] This type of sealing mechanism is allowed only until the first time the storage vessel is emptied and degassed or June 23, 2009, whichever is earlier.

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 are complying with Subpart MMM using the outlet concentration option, you demonstrate initial compliance by conducting a performance test to show the outlet TOC or total organic HAP concentration is $\leq$20 ppmv [§63.1365(a)(6) and (d)(2)].

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

(C) Flare

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

- 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 $\leq$20 ppmv, and the outlet HCl and Cl_2 concentration must be $\leq$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 option 5C in the section "What monitoring must I do for my storage vessels?" later in this chapter, [page 4-16]). 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 5 (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 (unless you get an extension) [§§63.1362(c)(5) and 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 do I have to report and when?" in Chapter 8 (page 8-1).

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 are complying using ...	Then your monitoring requirements include ...	You must monitor at this frequency...
Option 1, 2 or 3	various inspections and measurements	typically annually and every time the storage vessel is emptied and degassed
Option 5 (A or B)	monitor one or more control device operating parameters such as temperature and flow rate	every 15 minutes
Option 5 (C)	monitor presence of pilot flame	every 15 minutes
Option 5 (E)	monitor outlet TOC and, if appropriate, HCl/Cl_2 concentrations	every 15 minutes

Additional details for each option are provided below.

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

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

If your IFR has a ...	Then visually inspect the ...	For the following failures ...	At this frequency...	According to these sections of the rule...
Double-seal system **(Option A)**	IFR, the primary and secondary seal, gaskets, slotted membranes, and sleeve seals, if any (i.e., an "internal inspection")	• defects in the IFR • holes, tears, or other openings in the seal or seal fabric • gaskets that no longer close off the liquid surface to the atmosphere • slotted membranes with more than 10 percent open area	each time the vessel is emptied and degassed, **and** at least once every 5 years after the compliance date	§63.120(a)(3)(i) and (a)(7)
Double-seal system **(Option B)**	secondary seal through manholes and roof hatches on the fixed roof (i.e., an "external" inspection)	• IFRs that are not resting on the surface of the liquid or the leg supports • liquid on the IFR • detached seal • holes or tears in the seal fabric • visible gaps between the seal and the wall of the storage vessel	at least once every 12 months after either the initial fill date or the compliance date, whichever is later	§63.120(a)(3)(ii) and (a)(4)
	IFR, the primary and secondary seal, gaskets, slotted membranes, and sleeve seals, if any (i.e., an "internal" inspection)	• defects in the IFR • holes, tears, or other openings in the seal or seal fabric • gaskets that no longer close off the liquid surface to the atmosphere • slotted membranes with more than 10 percent open area	each time the vessel is emptied and degassed, and at least once every 10 years after the compliance date	§63.120(a)(3)(iii) and (a)(7)

If your IFR has a ...	Then visually inspect the ...	For the following failures ...	At this frequency...	According to these sections of the rule...
Single-seal system	IFR and the seal through manholes and roof hatches on the fixed roof (i.e., an "external" inspection)	• IFRs that are not resting on the surface of the liquid or the leg supports • liquid on the IFR • detached seal • holes or tears in the seal fabric • visible gaps between the seal and the wall of the storage vessel	at least once every 12 months after initial fill, or at least once every 12 months after compliance date	§63.120(a)(2)(i) and (a)(4)
	IFR, the seal, gaskets, slotted membranes, and sleeve seals, if any (i.e., an "internal" inspection)	• defects in the IFR • holes, tears, or other openings in the seal or seal fabric • gaskets that no longer close off the liquid surface to the atmosphere • slotted membranes with more than 10 percent open area	each time the storage vessel is emptied and degassed, and at least once every 10 years after the compliance date	§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 "How do I show initial compliance with the storage vessel requirements" earlier in this chapter.

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

Option 2: Monitoring for external floating roofs (EFRs)

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

For EFRs with the following features...	Monitor the following...	At this frequency ...[a]	According to this section of the rule...
All EFRs	visually inspect the roof, seals, and fittings	each time the vessel is emptied and degassed	§63.120(b)(10)
EFR with primary and secondary seals	measure[b] gap between vessel wall and primary seal	during the hydrostatic testing of the vessel or by the compliance date, whichever occurs last, and at least every 5 years thereafter	§63.120(b)(1)(i)
	inspect integrity of primary seal and if using a metallic shoe seal, measure the distance the metallic shoe extends above the liquid surface	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)(5)
	measure[b] gap between vessel wall and secondary seal	annually	§63.120(b)(1)(iii)
	inspect integrity of secondary seal and inspect for proper fit	annually	§63.120(b)(6)
EFR with liquid-mounted or metallic shoe primary seal and no secondary seal[c]	measure[b] gap between vessel wall and primary seal	annually	§63.120(b)(1)(ii)
	inspect integrity of primary seal	annually	§63.120(b)(5)(ii)
	if a metallic shoe seal is used, measure vertical distance that one end of the metallic shoe extends above the liquid surface	annually	§63.120(b)(5)(i)

[a] All measurements and inspections that must be performed annually must also be performed before the compliance date.
[b] Make seal gap measurements according to the method described in §63.120(b)(2) through (b)(4) of subpart G.
[c] When secondary seal is added, both the primary and secondary seals must be measured within 90 days and at the frequency specified for EFRs with primary and secondary seals [§63.120(b)(1)(iv)]. A secondary seal must be added when the vessel is emptied and degassed, or by June 23, 2009 at the latest. [§63.119(c)(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 "How do I show initial compliance with the storage vessel requirements" earlier in this chapter.

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 and other failures identified during inspections if you are using option 2. The types of conditions that you must repair and the time allowed for the repairs are as follows:

When you are performing ...	And you find that...	Then, repair the condition ...
visual inspection of the roof, seals, and fittings after emptying and degassing the storage vessel	• the external floating roof has defects • the primary or secondary seal has holes, tears, or other openings in the seal or seal fabric • gaskets no longer close off the liquid surface from the atmosphere • the slotted membrane has more than 10 percent open area	before refilling the storage vessel with organic HAP [§63.120(b)(10)(i)]
seal gap measurement and visual inspection for all primary seals	• the total area of gaps between the vessel wall and primary seal exceeds 212 cm^2/meter of vessel diameter • there are gaps between the vessel wall and primary seal wider than 3.81 cm • there are holes in the mechanical shoe (if used), seal fabric, or seal envelope	within 45 days from the measurement or inspection (unless you get an extension) [§63.120(b)(8)]
additional measurement for metallic shoe primary seals	the metallic shoe seal does not have one end in the stored liquid and the other end extending at least 61 cm above the stored liquid surface	within 45 days from the measurement or inspection (unless you get an extension) [§63.120(b)(8)]
seal gap measurement and visual inspection for all secondary seals	• the total area of gaps between the vessel wall and secondary seal exceeds 21.2 cm^2/meter of vessel diameter • there are gaps between the vessel wall and secondary seal wider than 1.27 cm • the secondary seal does not completely cover the space between the roof edge and the space between the vessel wall • there are holes, tears, or other openings in the secondary seal or seal fabric	within 45 days from the measurement or inspection (unless you get an extension) [§63.120(b)(8)]

Option 4: Vapor Balancing

If you comply with option 4, you must monitor quarterly (using Method 21) the pressure relief valve on the storage vessel. If you obtain a reading of 500 ppmv or greater, you have a leak. You must repair leaks within 5 days after the leak is detected. [§63.1362(c)(6)(iv)]

Option 5: 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

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

- monitor the outlet TOC and HCl/Cl_2 concentration at least once every 15 minutes

  Note: You do not have to monitor the total HCl and Cl_2 concentrations if you know that the emission stream does not contain HCl/Cl_2 emissions [§63.1366(b)(5)].

- adjust the monitored concentrations per §63.1365(a)(7) to account for supplemental gases, if any

  Note: As an alternative to adjusting monitored concentrations to account for supplemental gases when using a combustion device, you may monitor residence time and firebox temperature.

- 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

(D) Monitoring for boilers or process heaters

You are 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 5 (D) (see page 4-4).

Note: If your process heater or boiler has a design heat input of <44 MW, or the vent streams are not introduced with the primary fuel, you must comply with option 5A, 5B, or 5E.

What records must I keep for my storage vessels?

Recordkeeping requirements are presented in **Chapter 8**.

What reports must I submit for my storage vessels?

General reporting requirements are presented in **Chapter 8**. Requirements specific to storage vessels are shown in this section.

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

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

If you are complying with ...	Then for ...	Include the following information ...	According to this section of the rule ...
Option 1 or 3	annual "external" inspections during which you detect any failures of the control equipment	• date of inspection • identification of storage vessel • description of failure • date of and description of repair • date storage vessel was emptied, if applicable	§63.122(d)(1)
	"internal" inspections during which you detect any failures	• date of inspection • identification of storage vessel • description of the failure • date of and description of repair	§63.122(d)(2)

If you are complying with ...	Then for ...	Include the following information ...	According to this section of the rule ...
Option 2	seal gaps that exceed allowed limits and/or any defects or other seal failures that you detect during inspections conducted concurrently with the seal gap measurement	• date of seal gap measurement • raw data obtained in the measurement • calculation of total seal gap area • description of any failures • date of and description of repair (or date storage vessel was emptied)	§63.122(e)(1)
	visual inspections of empty and degassed storage vessels during which you detect any defects or failures	• date of inspection • identification of storage vessel • description of the failure • date of and description of repair	§63.122(e)(3)

For **Option 4**, you have no reporting requirements. However, the offsite reloading and cleaning facility must provide both you and EPA a written certification that they will comply with the requirements of Subpart MMM. If they comply by venting emissions from the railcar or tank truck to a control device, then they must comply with all of the applicable reporting requirements in §63.1368 of Subpart MMM. If they vapor balance, no reporting is required.

For **Options 5 (A, B, C and E)**, you must also report the following:

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

Checklists for Inspection of Storage Vessels

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

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

If you follow ...	For a storage vessel with...	Then use the following checklists[a] ...	Starting on page ...
Option 1	a fixed roof and an internal floating roof	2	4-21
Option 2	an external floating roof	3	4-25
Option 3	an external floating roof converted to an internal floating roof	4	4-32
Option 4	vapor balancing	5	4-37
Option 5(A or B)	a closed-vent system and control device that reduces emissions $\geq$95% by weight or reduces outlet concentrations $\leq$20 ppmv	6 (also use checklists 2 through 9, as applicable, in Chapter 3)	4-39
Option 5(C)	a flare	6 (and checklists 2 and 10 in Chapter 3)	4-39
Option 5(E)	emissions routed to a control device to meet the alternative standard	7	4-40

[a] Checklist 1 applies for all options.

Checklist 1: Applicability (All Options)

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

Note: Use this checklist to determine if your tanks or vessels are storage vessels, if your storage vessels are part of the affected source, and if storage vessels are subject to control requirements.

				Comments
1.	Does your tank or vessel meet the definition of a storage vessel? *§63.1361* *Note: If you answer "yes" to this question, proceed to question 2. If you answer "no," do not continue; your vessel is not a storage vessel.*	☐ Yes	☐ No	
2.	Is your storage vessel part of a PAI process unit? *§63.1360(f)* *Note: If you answer "yes" to this question, proceed to question 3. If you answer "no," do not continue; your storage vessel is not part of the affected source.*	☐ Yes	☐ No	
3.	Is your storage vessel a Group 1 storage vessel based on any one of the following: *§63.1362(c)(1)*			
	• you designated the storage vessel as Group 1?	☐ Yes	☐ No	
	• the storage vessel has a capacity $\geq$75 m^3 and stores material with a maximum true vapor pressure $\geq$3.45 kPa?	☐ Yes	☐ No	
	• the storage vessel is at a new affected source, has a capacity $\geq$40 m^3, and stores material with a maximum true vapor pressure $\geq$16.5 kPa?	☐ Yes	☐ No	
	Note: If you answer "yes" to any of the items in this question, your storage tank is subject to control requirements; proceed to the applicable checklist for the compliance option you choose. If you answer "no" to all of the items in this question, do not proceed; you are exempt from control requirements.			

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

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A. Monitoring and Inspection Requirements *§§63.119(b) and 63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
Note: The monitoring requirements include visual inspections. **Questions 3-5** apply for all visual inspections. **Questions 6-15** apply only for visual inspections performed each time the vessel is emptied and degassed (i.e., "internal" visual inspections).			
1. If the storage vessel is equipped with a single-seal system, do both of the following apply: *§63.120(a)(2)*			
• Do you perform an "external" visual inspection of the IFR and seal at least once every 12 months?	☐ Yes	☐ No	
• Do you perform an "internal" visual inspection of the IFR, the seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed, and at least once every 10 years?	☐ Yes	☐ No	
2. If the storage vessel is equipped with a double-seal system, do **either** of the following apply: *§63.120(a)(3)* • Do you perform an "internal" visual inspection of 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, or • Do you perform an "external" visual inspection of the IFR and the secondary seal at least once every 12 months, and do you perform an "internal" visual inspection of the IFR, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the vessel is emptied and degassed, and at least once every 10 years?	☐ Yes	☐ No	
3. Does the floating roof float on the liquid surface? *§§63.119(b)(1) and (2) and 63.120(a)(4)* *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. When the roof is resting on the leg supports, the process of filling, emptying, or refilling must be continuous and completed as soon as possible.*	☐ Yes	☐ No	

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

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

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

A. Monitoring and Inspection Requirements *§§63.119(b) and 63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
9. Inspect rim space vents			
• Are the rim space vents closed (except when either the roof is being floated off the roof leg supports, or the pressure beneath the rim seal exceeds the manufacturer's recommended setting)? *§63.119(a)(6)*	☐ Yes	☐ No	
• Are the rim space vents gasketed? *§63.119(b)(5)(v)*	☐ Yes	☐ No	
• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
10. Does each sample well have a slit fabric cover over at least 90 percent of the opening?[b] *§63.119(b)(5)(iii)* and *§63.120(a)(7)*	☐ Yes	☐ No	
11. Does each ladder well have a gasketed sliding cover?[b] *§63.119(b)(5)(vi)*	☐ Yes	☐ No	
12. Does each column well supporting the fixed roof have either a flexible fabric sleeve seal or gasketed sliding cover?[b] *§63.119(b)(5)(vii)*	☐ Yes	☐ No	
13. Do ladder and column well gaskets close off the liquid surface to the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
l4. If flexible fabric sleeve seals are used for column wells, are the fabric sleeves free of defects such as holes, tears, or gaps? *§63.120(a)(7)*	☐ Yes	☐ No	
15. If repairs were needed, did you complete them before refilling the storage vessel? *§63.120(a)(7)*	☐ Yes	☐ No	

B. Recordkeeping and Reporting Requirements *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(b)(11) and 63.1368(g)(2)(xii)*			**Comments**
Note: There are reporting and recordkeeping requirements for visual inspections.			
1. Did you record the occurrence of each visual inspection? *§63.123(c)*	☐ Yes	☐ No	
2. Do you maintain all records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
3. If you detect a failure during an inspection, do you submit all of the following information in your periodic report: *§63.122(d)(1)(ii) and (2)(ii)*			
• date of the inspection?	☐ Yes	☐ No	
• identification of all storage vessels with failures?	☐ Yes	☐ No	

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

B.	**Recordkeeping and Reporting Requirements** *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(b)(11) and 63.1368(g)(2)(xii)*			**Comments**
	• description of the failures?	☐ Yes	☐ No	
	• either the date and nature of repairs made or the date the vessel was emptied (if the vessel was not already empty)?	☐ Yes	☐ No	
4.	If your periodic report in "3" shows that you made a repair more than 45 days after the failure was found, does your next periodic report include documentation of the use of up to two 30-day extensions and the following information: *§§63.120(a)(4) and 63.122(d)(1)(iii)*			
	• identification of the storage vessel?	☐ Yes	☐ No	
	• description of the failure?	☐ Yes	☐ No	
	• documentation that alternate storage capacity was unavailable?	☐ Yes	☐ No	
	• schedule of actions taken to make repairs or empty the vessel as soon as possible?	☐ Yes	☐ No	
	• date the storage vessel was emptied and nature of and date repair was made?	☐ Yes	☐ No	
5.	If you refilled a storage vessel after it was emptied and degassed, did you submit a report notifying the Administrator at least 30 days before the vessel was refilled (7 days if the inspection was unplanned and could not be foreseen 30 days before refilling)? *§63.120(a)(5) and (6)*	☐ Yes	☐ No	

[a] If the internal floating roof is equipped, as of November 10, 1997, with a single vapor-mounted seal, then the requirement for a liquid-mounted seal, metallic shoe seal, or dual-seal does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) June 23, 2009.
[b] If the IFR did not meet these specifications as of November 10, 1997, the requirement to meet these specifications does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) no later than June 23, 2009.

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

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A. Monitoring and Inspection Requirements *§§63.119(c) and 63.120(b) as cross-referenced from §63.1365(d)(3)* **Comments**

Note: The monitoring requirements include visual inspections and seal gap measurements. For a dual-seal system, the secondary seal inspection and gap measurement (questions 3 and 5 through 7) occurs annually. Primary seal inspections and gap measurements (questions 4 through 7), and "comprehensive" inspections (questions 8 through 16) occur at least every 5 years and every time the storage vessel is empty and degassed. For a single-seal system (i.e., an option until 2009 at the latest), the primary seal inspection and gap measurement occurs annually, question 3 does not apply, and a "comprehensive" inspection is required when the storage vessel is empty and degassed.

1. Does the EFR float on the surface of the stored liquid? *§63.119(c)(3) and (4)* ☐ Yes ☐ No

   Note: The roof is not required to be floating on the liquid surface during initial filling, after the vessel has been completely emptied and degassed, and when completely emptied before being refilled. When the roof is resting on the leg supports, the process of filling, emptying, and refilling must be continuous and completed as soon as possible.

2. Is the EFR in good condition (i.e., free of defects such as corrosion and pools of standing liquid)? *§63.120(b)(10)(i)* ☐ Yes ☐ No

3. Inspect the secondary seal and perform seal gap measurements.

   - Is the seal continuously attached along the edge of the EFR? *§63.120(b)(6)(i)* ☐ Yes ☐ No
   - Is the seal and seal fabric free of holes, tears, or other openings? *§63.120(b)(6)(ii)* ☐ Yes ☐ No
   - Are any gaps between the seal and the wall of the storage vessel less than both of the following: *§63.120(b)(4)*
     - The total area of the gaps is less than 21.2 cm^2 per meter of vessel diameter? ☐ Yes ☐ No
     - The maximum gap width between the vessel wall and the seal does not exceed 1.27 cm? ☐ Yes ☐ No

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

A.	**Monitoring and Inspection Requirements** *§§63.119(c) and 63.120(b) as cross-referenced from §63.1365(d)(3)*			**Comments**
	• Do you measure the seal gap between the vessel wall and the secondary seal at least once per year? *§63.120(b)(1)(iii)*	☐ Yes	☐ No	
	Note: If, as of November 11, 1997, your EFR has a liquid-mounted or metallic shoe primary seal with no secondary seal, you are not required to install a secondary seal until either the next time the storage vessel is emptied and degassed or June 23, 2009, whichever is earlier.			
4.	Inspect the primary seal and perform seal gap measurements.			
	• Is the primary seal either a metallic shoe or liquid-mounted seal? *§63.119(c)(1)(ii)*	☐ Yes	☐ No	
	Note: If your EFR is equipped with a vapor-mounted primary seal and a secondary seal as of November 11, 1997, then you are not required to install a metallic shoe or liquid-mounted primary seal until the next time the storage vessel is emptied and degassed or June 23, 2009, whichever is earlier.			
	• Does the primary seal form a continuous closure that completely covers the space between the vessel wall and EFR such that: *§63.120(b)(3)*			
	▸ The total area of the gaps is less than 212 cm^2 per meter of vessel diameter?	☐ Yes	☐ No	
	▸ The maximum gap width between the vessel wall and the seal does not exceed 3.81 cm?	☐ Yes	☐ No	
	• Is the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used) free of holes, tears, or other openings? *§63.120(b)(5)(ii)*	☐ Yes	☐ No	
	• If the primary seal is a metallic shoe seal:			
	▸ Does the lower end of the metallic shoe extend into the stored liquid? *§63.120(b)(5)(i)*	☐ Yes	☐ No	
	▸ Does the upper end of the metallic shoe seal extend a minimum vertical distance of 61 cm above the liquid surface? *§63.120(b)(5)(i)*	☐ Yes	☐ No	
	▸ Is there a flexible coated fabric that spans the space between the metal shoe and the vessel wall?	☐ Yes	☐ No	
	• If the primary seal is a liquid-mounted seal, is the seal in contact with the liquid between the storage vessel wall and EFR? *definition of liquid-mounted seal in §63.111*	☐ Yes	☐ No	

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

A.	**Monitoring and Inspection Requirements** *§§63.119(c) and 63.120(b) as cross-referenced from §63.1365(d)(3)*			**Comments**
	• Do you measure the seal gap between the vessel wall and the primary seal at least every 5 years? *§63.120(b)(1)(i)*	☐ Yes	☐ No	
	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.			
5.	When you measure the seal gaps, if any, do all of the following apply:			
	• Is the EFR floating (i.e., not resting on the roof leg supports)? *§63.120(b)(2)(i)*	☐ Yes	☐ No	
	• Do you measure around the entire circumference of the vessel in each place where a 0.32 centimeter (⅛ inch) diameter uniform probe passes freely between the wall and the seal? *§63.120(b)(2)(ii)*	☐ Yes	☐ No	
	• Do you determine the total surface area of each gap using probes of various widths to measure the gap accurately? *§63.120(b)(2)(iii)*	☐ Yes	☐ No	
6.	If you determine that it is unsafe to perform the seal gap measurements, do either of the following apply: *§63.120(b)(7)*	☐ Yes	☐ No	
	• Do you measure the gaps no later than 30 days after the determination?			
	or			
	• Do you remove the vessel from service within 45 days after the determination?			
	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			
7.	Do you either repair the seals or empty the storage vessel no later than 45 days after the seal gap measurements or concurrent inspection indicate a failure? *§63.120(b)(8)*	☐ Yes	☐ No	
8.	Do you visually inspect the EFR, the primary seal, the secondary seal, and fittings each time the vessel is emptied and degassed? *§63.120(b)(10)*	☐ Yes	☐ No	

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

A.	**Monitoring and Inspection Requirements** *§§63.119(c) and 63.120(b) as cross-referenced from §63.1365(d)(3)*			**Comments**
9.	Inspect deck openings.			
	• If the EFR is non-contact, do the openings in the EFR project below the stored liquid surface (except automatic bleeder and rim space vents)? *§63.119(c)(2)(i)*	☐ Yes	☐ No	
	Note: If these openings did not provide projections below the liquid surface as of November 11, 1997, you are not required to comply with this requirement until the next time the storage vessel is emptied and degassed or June 23, 2009, whichever is earlier.			
	• Is each opening in the EFR equipped with a gasketed cover that forms a vapor-tight seal (except automatic bleeder vents, rim space vents, roof drains, and leg sleeves)? *§63.119(c)(2)(ii)*	☐ Yes	☐ No	
	• Is each gasketed cover on any EFR opening closed (unless open for access)?	☐ Yes	☐ No	
	• Are covers on each access hatch and gauge float well fastened air-tight when closed? *§63.119(c)(2)(iii)*	☐ Yes	☐ No	
	• Do gaskets on EFR opening covers close off the liquid surface from the atmosphere? *§63.120(b)(10)(i)*	☐ Yes	☐ No	
10.	Inspect automatic bleeder vents.			
	• Are the automatic bleeder vents closed (unless the roof is being floated off or landed on the roof leg supports)? *§63.119(c)(2)(iii)*	☐ Yes	☐ No	
	• Are the automatic bleeder vents gasketed? *§63.119(c)(2)(v)*	☐ Yes	☐ No	
	• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(b)(10)(i)*	☐ Yes	☐ No	
11.	Inspect rim space vents.			
	• Are the rim space vents closed (except when the roof is being floated off the roof leg supports, or the pressure beneath the rim seal exceeds the manufacturer's recommended setting)? *§63.119(c)(2)(iv)*	☐ Yes	☐ No	
	• Are the rim space vents gasketed? *§63.119(c)(2)(v)*	☐ Yes	☐ No	
	• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(b)(10)(i)*	☐ Yes	☐ No	

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

A.	**Monitoring and Inspection Requirements** *§§63.119(c) and 63.120(b) as cross-referenced from §63.1365(d)(3)*			**Comments**
12.	Is each roof drain covered with a slotted membrane fabric that covers at least 90 percent of the opening area? *§63.119(c)(2)(vi)*	☐ Yes	☐ No	
13.	Is each slotted or 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) and (ix)*	☐ Yes	☐ No	
14.	Does each unslotted guide pole have on its end a closed gasketed cap that closes off the liquid surface from the atmosphere (except when gauging the liquid level or taking liquid samples)? *§63.119(c)(2)(viii)*	☐ Yes	☐ No	
15.	Does each slotted guide pole have a gasketed float inside the guide pole or other control device that closes off the liquid surface from the atmosphere? *§63.119(c)(2)(x)*	☐ Yes	☐ No	
16.	Does each gauge hatch and sample well have a closed gasketed cover that closes off the liquid surface from the atmosphere (except when open for access)? *§63.119(c)(2)(xi)*	☐ Yes	☐ No	
B.	**Recordkeeping and Reporting Requirements** *§§ 63.122 and 63.123 as cross-referenced by §§ 63.1367(b)(11) and 63.1368(g)(2)(xii)*			**Comments**
1.	Do your records indicate that you made seal gap measurements and performed a concurrent visual inspection annually for the secondary seal and every 5 years for the primary seal? *§63.120(b)(1)(i) and (iii)*	☐ Yes	☐ No	
2.	For all seal gap measurements, did you record all of the following: *§63.123(d)*			
	• the date of the seal gap measurement?	☐ Yes	☐ No	
	• the raw data obtained?	☐ Yes	☐ No	
	• calculations performed?	☐ Yes	☐ No	
3.	Did you record the occurrence of each "comprehensive" visual inspection?	☐ Yes	☐ No	
4.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
5.	Did you notify the Administrator at least 30 days before each seal gap measurement? *§63.120(b)(9)*	☐ Yes	☐ No	

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

B. Recordkeeping and Reporting Requirements *§§ 63.122 and 63.123 as cross-referenced by §§ 63.1367(b)(11) and 63.1368(g)(2)(xii)*			**Comments**
6. If you detected a failure in the seals during the seal gap measurement or concurrent visual inspection, did you include the following in your periodic report: *§63.122(e)(1)*			
• the date of the inspection or measurement?	☐ Yes	☐ No	
• the raw data obtained during the seal gap measurement?	☐ Yes	☐ No	
• calculations of the total gap area?	☐ Yes	☐ No	
• a description of any failure?	☐ Yes	☐ No	
• the date and nature of the repair or the date the vessel was emptied?	☐ Yes	☐ No	
7. If your periodic report in "6" 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 §63.122(e)(2)*			
• identification of the storage vessel?	☐ Yes	☐ No	
• description of the failure?	☐ Yes	☐ No	
• documentation that alternate storage capacity was unavailable?	☐ Yes	☐ No	
• schedule of actions taken to make repairs or empty the vessel as soon as possible?	☐ Yes	☐ No	
• date the storage vessel was emptied and nature of and date repair was made?	☐ Yes	☐ No	
8. If you detected a failure during a "comprehensive" visual inspection, did you submit the following information about the inspection in your periodic report: *§63.122(e)(3)(ii)*			
• date of the inspection?	☐ Yes	☐ No	
• identification of all storage vessels with failures?	☐ Yes	☐ No	
• description of the failures?	☐ Yes	☐ No	
• date and nature of repair?	☐ Yes	☐ No	
9. Before refilling an empty and degassed storage vessel, did you submit a report to notify the Administrator at least 30 days before the vessel was refilled (7 days if the inspection was unplanned and could not be foreseen 30 days before refilling)? *§63.120(b)(10)(ii) and (iii)*	☐ Yes	☐ No	

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

B. Recordkeeping and Reporting Requirements *§§ 63.122 and 63.123 as cross-referenced by §§ 63.1367(b)(11) and 63.1368(g)(2)(xii)*			**Comments**
10. If you did not empty and remove a storage vessel from service within 45 days after determining that it was unsafe to perform the seal gap measurement and concurrent inspection of the seals, does your next periodic report include the following documentation for up to two 30-day extensions: *§§63.120(b)(7)(ii) and 63.122(e)(2)*			
• identification of the storage vessel?	☐ Yes	☐ No	
• explanation of why it is unsafe to perform the seal gap measurements?	☐ Yes	☐ No	
• documentation that alternate storage capacity was unavailable?	☐ Yes	☐ No	
• a schedule of actions taken to make repairs or empty the vessel as soon as practical?	☐ Yes	☐ No	
• date the storage vessel was emptied and nature of and date repair was made?	☐ Yes	☐ No	

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

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A. Monitoring and Inspection Requirements *§§63.119(b) and (c) and 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 6-15** apply only for visual inspections performed each time the vessel is emptied and degassed (i.e., "internal" visual inspections).

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

   - Do you perform an "external" visual inspection of the floating deck and seal at least once every 12 months? ☐ Yes ☐ No

   - Do you perform an "internal" visual inspection of the floating deck, the seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed, and at least once every 10 years? ☐ Yes ☐ No

2. If the storage vessel is equipped with a double-seal system, do **either** of the following apply: *§63.120(a)(3)* ☐ Yes ☐ No

   - Do you perform an "internal"visual inspection of 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, or

   - Do you perform an "external" visual inspection of the floating deck and the secondary seal at least once every 12 months, and do you perform an "internal" visual inspection of 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?

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

A.	**Monitoring and Inspection Requirements** *§§63.119(b) and (c) and 63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
3.	Does the floating deck float on the liquid surface? *§§63.119(b)(1) and (2) and 63.120(a)(4)* *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. When the floating roof is resting on the leg supports, the process of filling, emptying, and refilling must be continuous and completed as soon as possible.*	☐ Yes	☐ No	
4.	Is the floating deck in good condition (i.e., free of defects such as corrosion or pools of standing liquid)? *§63.120(a)(4) and (7)*	☐ Yes	☐ No	
5.	Inspect the seal(s). *§63.120(a)(4) and (7)*			
	• Is the seal attached to the floating deck?	☐ Yes	☐ No	
	• Is the seal or seal fabric free of holes, tears, or other openings?	☐ Yes	☐ No	
	• Does the seal make continuous contact with the wall of the storage vessel (i.e., no visible gaps between the seal and wall)?	☐ Yes	☐ No	
6.	Is the floating deck equipped with a liquid-mounted seal, metallic shoe seal, or a double seal? *§63.119(b)(3)* *Note: If the IFR is equipped, as of November 11, 1997, with a single vapor-mounted seal, then you are not required to comply with this provision until the next time the storage vessel is emptied and degassed or June 23, 2009, whichever is earlier.*	☐ Yes	☐ No	
7.	Inspect deck openings.			
	• If the floating deck is non-contact, do the openings in the floating deck project below the stored liquid surface (except automatic bleeder and rim space vents)? *§63.119(c)(2)(i)* *Note: If these openings did not provide projections below the liquid surface as of November 11, 1997, you are not required to comply with this provision until the next time the storage vessel is emptied and degassed or June 23, 2009, whichever is earlier.*	☐ Yes	☐ No	

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

A.	**Monitoring and Inspection Requirements** *§§63.119(b) and (c) and 63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
	• Is each opening in the floating deck equipped with a gasketed cover that forms a vapor-tight seal (except automatic bleeder vents, rim space vents, roof drains, and leg sleeves)? *§63.119(c)(2)(ii)*	☐ Yes	☐ No	
	• Is each gasketed cover on any deck opening closed (unless open for access)? *§63.119(c)(2)(ii)*	☐ Yes	☐ No	
	• Are covers on each access hatch and gauge float well fastened air-tight when closed? *§63.119(c)(2)(ii)*	☐ Yes	☐ No	
	• Do gaskets on deck opening covers close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
8.	Inspect automatic bleeder vents.			
	• Are the automatic bleeder vents closed (unless the roof is being floated off or landed on the roof leg supports)? *§63.119(c)(2)(iii)*	☐ Yes	☐ No	
	• Are the automatic bleeder vents gasketed? *§63.119(c)(2)(v)*	☐ Yes	☐ No	
	• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
9.	Inspect rim space vents.			
	• Are the rim space vents closed (except when either the roof is being floated off the roof leg supports, or the pressure beneath the rim seal exceeds the manufacturer's recommended setting)? *§63.119(c)(2)(iv)*	☐ Yes	☐ No	
	• Are the rim space vents gasketed? *§63.119(c)(2)(v)*	☐ Yes	☐ No	
	• Do the gaskets close off the liquid surface from the atmosphere? *§63.120(a)(7)*	☐ Yes	☐ No	
10.	Is each roof drain covered with a slotted membrane fabric that covers at least 90 percent of the opening area? *§63.119(c)(2)(vi)*	☐ Yes	☐ No	
11.	Is each slotted or 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) and (ix)*	☐ Yes	☐ No	

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

A.	**Monitoring and Inspection Requirements** *§§63.119(b) and (c) and 63.120(a) as cross-referenced from §63.1365(d)(3)*			**Comments**
12.	Does each unslotted guide pole have on its end a closed gasketed cap that closes off the liquid surface from the atmosphere (except when gauging the liquid level or taking liquid samples)? *§63.119(c)(2)(viii)*	☐ Yes	☐ No	
13.	Does each slotted guide pole have a gasketed float inside the guide pole or other control device that closes off the liquid surface from the atmosphere? *§63.119(c)(2)(x)*	☐ Yes	☐ No	
14.	Does each gauge hatch and sample well have a closed gasketed cover that closes off the liquid surface from the atmosphere (except when open for access)? *§63.119(c)(2)(xi)*	☐ Yes	☐ No	
15.	Did you complete any repairs of failures detected during inspections before refilling the storage vessel? *§63.120(a)(7)*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements** *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(b)(11) and 63.1368(g)(2)(xii)*			**Comments**
Note:	There are reporting and recordkeeping requirements for visual inspections.			
1.	Did you record the occurrence of each visual inspection? *§63.123(e)*	☐ Yes	☐ No	
2.	Do you maintain all records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
3.	If you detected a failure during an inspection, did you submit the following information in your periodic report: *§63.122(d)(1)(ii) and (2)(ii)*			
	• date of the inspection?	☐ Yes	☐ No	
	• identification of all storage vessels with failures?	☐ Yes	☐ No	
	• description of the failures?	☐ Yes	☐ No	
	• either the date and nature of repairs made or the date the vessel was emptied (if the vessel was not already empty)?	☐ Yes	☐ No	
4.	If your periodic report in "3" shows that you made a repair more than 45 days after the failure was found, does your next periodic report include documentation of the use of up to two 30-day extensions and the following information: *§§63.120(a)(4) and 63.122(d)(1)(iii)*			
	• identification of the storage vessel?	☐ Yes	☐ No	
	• description of the failure?	☐ Yes	☐ No	
	• documentation that alternate storage capacity was unavailable?	☐ Yes	☐ No	

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

B.	**Recordkeeping and Reporting Requirements** *§§ 63.122 and 63.123 as cross referenced by §§ 63.1367(b)(11) and 63.1368(g)(2)(xii)*			**Comments**
	• schedule of actions taken to make repairs or empty the vessel as soon as possible?	☐ Yes	☐ No	
	• date the storage vessel was emptied and nature of and date repair was made?	☐ Yes	☐ No	
5.	If you refilled a storage vessel after it was emptied and degassed, did you submit a report notifying the Administrator at least 30 days before the vessel was refilled (7 days if the inspection was unplanned and could not be foreseen 30 days before refilling)? *§63.120(a)(5) and (6)*	☐ Yes	☐ No	

Checklist 5: Requirements for a storage vessels using vapor balancing (Option 4)

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirements**			**Comments**
1.	When a storage vessel is filled from a tank truck or railcar, is a vapor collection system connected between them? *§63.1362(c)(6)(iii)*	☐ Yes	☐ No	
2.	Is the pressure relief device on the storage vessel set to ≥2.5 psig? *§63.1362(c)(6)(v)*	☐ Yes	☐ No	
3.	Is the pressure relief device monitored quarterly for leaks using Method 21 of 40 CFR, part 60, appendix A? *§63.1362(c)(6)(v)(A)*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you have records that the tank trucks and/or railcars from which the storage vessel is filled meet U.S. DOT pressure requirements in 49 CFR part 180 or 173.31, respectively? *§63.1367(b)(8)*	☐ Yes	☐ No	
2.	For each pressure relief device leak, do you have records of all of the following: *§§63.1367(b)(8)*			
	• the instrument identification number?	☐ Yes	☐ No	
	• the equipment identification number?	☐ Yes	☐ No	
	• operator name, initials, or identification number?	☐ Yes	☐ No	
	• date leak was detected?	☐ Yes	☐ No	
	• date of first repair attempt?	☐ Yes	☐ No	
	• date of successful repair?	☐ Yes	☐ No	
	• maximum instrument reading measured by Method 21 after the leak is repaired?	☐ Yes	☐ No	
3.	Do you have written certification from facilities that reload and/or clean tank trucks and railcars that they will either reduce the HAP content of displaced vapor by ≥90 percent (and meet compliance requirements in Subpart MMM) or vapor balance to the tank from which the tank truck or rail car is loaded? *§63.1362(c)(6)(vii)(A)*	☐ Yes	☐ No	
4.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	

Checklist 6: Requirements for a storage vessel meeting the requirements for a <u>closed-vent system and add-on control device</u> (Options 5A, 5B, and 5C)

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirements**			**Comments**
1.	Was the control device operational at all times except during periods of planned routine maintenance? *§63.1362(c)(5)*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you keep records of periods of planned routine maintenance? *§63.1367(b)(6)(viii)*	☐ Yes	☐ No	
2.	Do you submit both of the following in your periodic reports? *§63.1368(g)(2)(v)*	☐ Yes	☐ No	
	• records of actual periods of planned routine maintenance during the reporting period?	☐ Yes	☐ No	
	• anticipated periods of planned routine maintenance for the next reporting period?	☐ Yes	☐ No	
3.	Do both of the following apply each time periods of planned routine maintenance exceed 240 hr/yr: *§63.1362(c)(5)*			
	• you submit an application to the Administrator requesting approval of an extension to no more than 360 hr/yr that contained both of the following:	☐ Yes	☐ No	
	‣ an explanation of why the extension is needed?	☐ Yes	☐ No	
	‣ a statement affirming that no material will be added to the storage vessel between the time the 240 hr limit is exceeded and the date the control device is returned to service?	☐ Yes	☐ No	
	• you submit the application at least 60 days before the 240 hr/yr limit is exceeded?	☐ Yes	☐ No	

Checklist 7: Requirements for a storage vessel meeting the <u>alternative standard</u> (Option 5E)

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. Only question 7 in section A and questions 8 through 10 in section B of this checklist apply if you have already used checklists 2 and 12 in chapter 3 for process vents that are controlled with the same control device. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	Monitoring Requirements			Comments
1.	Did you install a CEMS to monitor and record the outlet TOC concentration at least once every 15 minutes? *§63.1366(b)(5)*	☐ Yes	☐ No	
2.	If you are using a combustion control device that generates HCl, did you install a CMS to monitor and record the outlet HCl concentration at least once every 15 minutes?	☐ Yes	☐ No	
3.	If you introduce supplemental gases to the emission stream before a noncombustion device, do you perform both of the following: *§§63.1365(a)(7) and 63.1366(b)(5)(ii)*			
	• adjust the monitored outlet TOC and/or HCl/Cl_2 concentrations to account for the supplemental gases?	☐ Yes	☐ No	
	• evaluate the volumetric flow rate of all gas streams each time a new operating scenario is implemented?	☐ Yes	☐ No	
4.	If you introduce supplemental gases to the emission stream before a combustion device, do you perform either of the following: *§§63.1365(a)(7) and 63.1366(b)(5)(ii)*			
	• adjust the monitored outlet TOC and/or HCl/Cl_2 concentrations to 3 percent oxygen?	☐ Yes	☐ No	
	• monitor residence time and firebox temperature?	☐ Yes	☐ No	
5.	Is the CEMS data reduced to operating day averages? *§63.1366(b)(2) and (8)*	☐ Yes	☐ No	
6.	If flow to the control device can be intermittent, did you install a flow indicator at the inlet or outlet of the control device, and do you use it to identify periods of no flow? *§63.1366(b)(2)(iii)*	☐ Yes	☐ No	
7.	Was the control device operational at all times except during periods of planned routine maintenance? *§63.1362(c)(5)*	☐ Yes	☐ No	

Checklist 7: *(cont'd)*
Requirements for a storage vessel meeting the alternative standard (Option 5E)

B.	Recordkeeping and Reporting Requirements			Comments
1.	Do you have a written quality control program with protocols for various operations, including calibration procedures for the monitor? *§63.8(d)*	☐ Yes	☐ No	
2.	Have your recorded all maintenance and calibration checks performed on the CEMS? *§63.1367(b)(3)*	☐ Yes	☐ No	
3.	Do you have records of: *§§63.1367(a)(4) and 63.10(c)(1)-(14)*			
	• All required CEMS measurements (including monitoring data recorded during unavoidable CEMS breakdowns and out-of-control periods)?	☐ Yes	☐ No	
	• The date and time of each period when the CEMS is inoperative except for zero (low-level) and high-level checks?	☐ Yes	☐ No	
	• The date and time of each period when the CEMS is out of control (e.g., calibration drift exceeds specification, CEMS fails cylinder gas audit)?	☐ Yes	☐ No	
	• The date and start and end time of each period of excess emissions and parameter monitoring exceedances occurring during startups, shutdowns, malfunctions, and at other times?	☐ Yes	☐ No	
	• The nature and cause of any malfunction of your monitor (if known), and corrective actions taken?	☐ Yes	☐ No	
	• The total process operating time during the reporting period?	☐ Yes	☐ No	
	• All procedures, including calibrations, that are part of your quality control program?	☐ Yes	☐ No	
4.	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) and 63.8(e)(2)*	☐ Yes	☐ No	
5.	Did you include in your periodic report a description of the routine maintenance planned for the control device for the next reporting period and actually performed in the last reporting period? *§§63.1367(b)(6)(viii) and 63.1368(g)(2)(v)*	☐ Yes	☐ No	

Checklist 7: *(cont'd)*
Requirements for a storage vessel meeting the alternative standard (Option 5E)

B.	Recordkeeping and Reporting Requirements			Comments
6.	Do you submit all of the following in your periodic reports if exceedances or excursions are ≥1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data for all operating days or operating blocks when the average TOC or HCl/Cl_2 concentration exceeds 20 ppmv for combustion control devices or 50 ppmv for noncombustion control devices?	☐ Yes	☐ No	
	• identification of all operating days when insufficient monitoring data are collected?	☐ Yes	☐ No	
7.	Do you maintain records for 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
8.	Do you keep records of periods (i.e., date and time) of planned routine maintenance? *§63.1367(b)(6)(viii)*	☐ Yes	☐ No	
9.	Do you submit both of the following in your periodic reports: *§63.1368(g)(2)(v)*			
	• records of actual periods of planned routine maintenance for the reporting period?	☐ Yes	☐ No	
	• anticipated periods of planned routine maintenance for the next reporting period?	☐ Yes	☐ No	
10.	Do all of the following apply each time periods of planned routine maintenance exceed 240 hr/yr: *§§63.1362(c)(5)*			
	• you submit an application to the Administrator requesting approval of an extension to no more than 360 hr/yr that contained both of the following:			
	▸ an explanation of why the extension is needed?	☐ Yes	☐ No	
	▸ a statement affirming that no material will be added to the storage vessel between the time the 240 hr limit is exceeded and the date the storage vessel is returned to service?	☐ Yes	☐ No	
	• you submit the application at least 60 days before the 240 hr/yr limit is exceeded?	☐ Yes	☐ No	

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Chapter 5 - Complying with requirements for wastewater systems

What wastewater streams are subject to Subpart MMM?

Subpart MMM applies to "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, or a scrubber used to control emissions from a PAI process, and contains either:
  - 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 compounds listed on Table 9 of subpart G of the HON.
  - 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 Table 9 HAP per individual discharge event.

Residuals removed from a Group 1 wastewater stream are also subject to Subpart MMM.

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

What types of wastewater components are subject to Subpart MMM?

Subpart MMM applies to all of the following components of wastewater systems; these components are called waste management units:

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

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.

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

Subpart MMM also applies to heat exchange systems (see the section "What are my compliance options for heat exchange systems?" beginning on page 5-30 for additional information).

Definition. *Heat exchange system* means any cooling tower system or once-through cooling water system (e.g., river or pond water). A heat exchange system can include more than one heat exchanger and can include an entire recirculating or once-through cooling system.

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

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

How do I identify a Group 1 wastewater stream?

You identify Group 1 wastewater streams in either of the following ways: [§63.144(a)(1) and (2)]

- designate the streams as Group 1
- determine the wastewater stream flow rate and annual average concentration of Table 9 HAP

If you designate the stream as Group 1, you do not have to do any measurements or calculations.

To determine the annual average flowrate and annual average concentration, both values must be representative of actual or anticipated operation of the PAI process unit over a designated 12-month period.

The annual average concentration is the total mass of Table 9 compounds present in the wastewater stream during the designated 12-month period divided by the total mass of the wastewater stream in the same 12-month period.

You may base the concentration on any of the following: [§63.144(b)]

- process knowledge
- bench scale or pilot scale test data
- test data from sampling at the point of determination (POD) or at a location downstream of the POD

The POD means the point at which a wastewater stream exists the PAI process unit. [§63.1361]

Note: You may determine the concentration either at the POD or downstream from the POD. If you determine the concentration downstream of the POD, you must also make adjustments to account for changes (e.g., dilution) caused by combining the Group 1 stream with other streams.

You may base the flowrate on any of the following: [§63.144(c)]

- knowledge of the wastewater stream and/or process
- historical records
- measurement of the flowrate

If you determine or estimate the total volume of wastewater, divide by 525,000 minutes to determine the annual average flowrate.

Note: You may determine the flowrate either at the POD or downstream from the POD. If you determine the flowrate downstream of the POD, you must also make adjustments like those described above for concentration.

What are my compliance options for wastewater systems?

You must meet **all** of the following for Group 1 wastewater streams:

- emission suppression compliance options
- air pollution control device compliance options for vented emissions from covered and enclosed waste management units
- treatment compliance options

You must meet **any** of the following for residuals: [§63.138(k)]

- recycle it to a process
- sell it for the purposes of recycling
- return it to the treatment unit
- treat it to reduce the Table 9 HAP by ≥99 percent
- treat in a RCRA unit

What are my emission suppression compliance options?

Emission suppression options are techniques for minimizing HAP emissions before the wastewater reaches a treatment unit. You have several emission suppression compliance options for each type of waste management unit. These options are the same for both existing and new sources.

Note: The only exemption from the emission suppression requirements is for waste management units that are also biological treatment units and meet specified requirements for HAP degradation. See the discussion of treatment options T3G and T3H in the sections "What treatment compliance options do I have?" beginning on page 5-10 and "How do I show initial compliance with the treatment compliance requirements?" beginning on page 5-13. [§63.138(a)(3)]

Wastewater tanks

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 any of the following: [§63.133(a)]

> **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.

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

Your three compliance options for these wastewater tanks are:

Option WT1: 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 WT2: Use a fixed roof and an internal floating roof [§63.133(a)(2)(ii)]

Option WT3: Use an external floating roof [§63.133(a)(2)(iii)]

For all other wastewater tanks that receive, manage, or treat a Group 1 wastewater stream, you have four compliance options available. You may comply using option WT1, WT2, or WT3 as described above, or you may comply using:

Option WT4: Use a fixed roof [§63.133(a)(1)]

Use a fixed roof tank, which may be vented to the atmosphere.

Surface impoundments

If your surface impoundment receives, manages, or treats a Group 1 wastewater stream or residual, you have two compliance options:

Definition. *Surface impoundment* means a waste management unit which is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials (although it may be lined with manmade materials), which is designed to hold an accumulation of liquid wastes or waste containing free liquids. A surface impoundment is used for the purpose of 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.

Option S1: Use a cover and control device [§63.134(b)(1)]

Install a vented cover (e.g., an air supported structure or rigid cover) and a closed vent system that routes HAP vapors to an air pollution control device. Keep access hatches, sampling ports, and other openings in the cover closed at all times except when it is necessary to use the opening for sampling, removal, or for equipment inspection, maintenance, or repair. For more information about control device requirements, see "What are my compliance options for air pollution control devices?" later in this chapter (page 5-9).

Option S2: Use a floating flexible membrane cover [§63.134(b)(2)]

Use a floating flexible cover that meets all of the following design and operational criteria:

- it is designed to float on the liquid surface and form a continuous barrier over the entire surface of the liquid
- is constructed from either:
  - high density polyethylene (HDPE) that is at least 2.5 millimeters thick
  - a material or a composite of different materials that have both organic permeability properties that are equivalent to those of HDPE and chemical and physical properties such that it will last for its intended service life

- it has no visible cracks, holes, gaps, or other open spaces between cover section seams or between the edge of the cover and its foundation mountings
- each opening in the cover has a closure device (e.g., an access hatch) that is free of visible cracks and other open spaces between the edge of the opening in the cover and the closure device; §63.134(b)(2)(vi) specifies factors to consider in selecting suitable materials for closure devices
- closure devices are secured in the closed position except when allowed to be open as specified in §63.134(b)(2)(vii)
- drains for emergency removal of stormwater are allowed in the cover; these drains must have either of the following:
  - a slotted membrane fabric cover that covers at least 90 percent of the area of the opening
  - a flexible fabric sleeve seal

Containers

If your container receives, manages, or treats a Group 1 wastewater stream or residual, you must operate and maintain a cover on the container. Other compliance requirements vary depending on the size of the container and whether you treat wastewater in the container.

Definition. *Container* means 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.

Your compliance options for containers are summarized in the following table:

Capacity of the container, m^3	If you treat wastewater in the container, must it remain open during treatment?	Compliance options
$\geq$ 0.42	No	C1
	Yes	C1 and C3
< 0.42 (but >0.1)	No	C1 or C2
	Yes	C3 and either C1 or C2

Option C1: Use a cover and inspect for leaks [§63.135(b)(1), (b)(2)(ii), and (b)(3)]

Operate and maintain a cover, keep the cover and all openings closed except when in use, and inspect for leaks. In addition, when you pump a Group 1 wastewater stream into a container that has a capacity of at least 0.42 m^3, you must use a submerged fill pipe that meets design criteria specified in §63.135(c)(1). See "What monitoring must I do to comply with the emission suppression requirements for waste management units?" later in this chapter (page 5-22) for more information about the inspection requirements.

Option C2: Use a cover on containers that meet Department of Transportation (DOT) specifications [§63.135(b)(2)(i) and (b)(3)]

Use a container that meets DOT specifications and testing requirements under 40 CFR part 178. Keep the cover and all openings closed except when in use.

Option C3: Use an enclosure [§63.135(d)]

If you treat a Group 1 wastewater stream or residual in a container that must remain open during treatment, then you must place the container inside an enclosure that has a closed vent system to transport organic vapors to a control device. You also must comply with either option C1 or C2. See "What are my compliance options for air pollution control devices?" later in this chapter (page 5-9) for more information about the requirements for control devices.

Individual drain systems

If your individual drain system (IDS) receives or manages a Group 1 wastewater stream, then you have two compliance options.

Definition. *Individual drain system* means the system used to convey wastewater streams or residuals to a waste management unit or to discharge or disposal. The term includes: hard piping; all process drains and junction boxes; and associated sewer lines, other junction boxes, manholes, sumps, and lift stations conveying wastewater streams or residuals.

Your compliance options for individual drain systems are as follows:

Option D1: Cover each opening [§63.136(b)]

Use covers on each opening in the drain system that are designed and operated as follows:

- if the cover is vented, route vapors to a process or through a closed vent system to a control device

- keep covers and openings in the covers closed at all times except when necessary to use the openings

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See "What are my compliance options for air pollution control devices?" beginning on page 5-9 for more information about the requirements for control devices.

Option D2: Use specified techniques for various parts of the drain system [§63.136(e)]

Use emission suppression techniques as described in the following table:

for the following part of an IDS[a]...	you must suppress emissions by...	and if...	according to this section of the rule...
an individual drain	using either a: • water seal • tightly fitting cap or plug	you use a water seal, you must design the wastewater discharge pipe to the drain or the shield around the drain as specified in §63.136(e)(1)(ii)	§63.136(e)(1)
a junction box	using a tightly fitting solid cover	your cover is vented, you must route the vapors to a process or transport the vapors through a closed vent system to a control device *(note that if the junction box is filled and emptied by gravity flow or it operates with only slight variations in liquid level, then venting to the atmosphere is allowed if the system is designed as specified in §63.136(e)(2)(ii))*	§63.136(e)(2)
sewer lines	keeping covered or enclosed without visible gaps or other openings to the atmosphere	N/A	§63.136(e)(3)

[a] A segregated stormwater sewer system, which is a drain and collection system that you designed and operate for the sole purpose of collecting rainfall runoff, is exempt from the requirements for individual drain systems under subpart MMM.

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.

If your oil-water separator receives, manages, or treats a Group 1 wastewater stream or residual, then you have three compliance options:

Option O1: Use a fixed roof and control device §63.137(a)(1)

Use a fixed roof and transport organic vapors through a closed-vent system to a control device. See "What are my compliance options for air pollution control devices?" below on this page for more information about the requirements for control devices.

Option O2: Use a floating roof §63.137(a)(2)

Use a floating roof that meets the requirements specified in 40 CFR part 60, subpart QQQ §§60.693-2(a)(1)(i), (a)(1)(ii), (a)(2), (a)(3), and (a)(4).

Note: For those parts of an oil-water separator where you cannot use a floating roof (e.g., over the weir mechanism), you must comply with option O1.

Option O3: Use an equivalent means of reduction §63.137(a)(3)

You may submit an application requesting approval of an alternative means of reduction that is equivalent to the reduction that would be achieved by Option O1 or Option O2.

Note: You application must include either actual emission test data or an engineering evaluation [§63.137(a)(3)(i) and (ii)]

What are my compliance options for air pollution control devices?

If you comply with an emission suppression compliance option for waste management units, including waste management units that are treatment units, that includes vented covers or enclosures, you have five compliance options for the vented emission streams:

Option A1: Percent reduction [§63.139(c)(1)(i), (2), (4), and (5)]

Reduce vented organic HAP emissions by ≥95 percent.

Option A2: Outlet concentration limit [§§63.139(c)(1)(ii), (2), (4), and (5), and 63.1362(d)(13)]

Reduce vented organic HAP emissions to ≤20 ppmv as TOC. If you combine the emission streams with supplemental gases before a vapor recovery system, you must adjust the measured HAP concentration to account for the dilution caused by the supplemental gases. If you combine the emission stream with supplemental gases prior to a combustion device, you must calculate the concentration at 3 percent oxygen.

Note: This option is not allowed for emissions from surface impoundments and containers if you use a noncombustion device.

Option A3: Specified enclosed combustion device [§63.139(b)(1)(iii)]

Use an enclosed combustion device that provides a minimum residence time of 0.5 seconds at a minimum temperature of 760°C.

Option A4: Use a flare [§63.139(b)(3)]

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

Option A5: Specified exempted devices [§63.139(d)(4)]

Use any of the following devices that are exempt from initial compliance, monitoring, recordkeeping, and reporting requirements under Subpart MMM:

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

What treatment compliance options do I have for my wastewater streams?

Treatment units are techniques that remove or destroy the organics in a wastewater stream. Subpart MMM includes several compliance options and specifies how treatment units 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 all existing sources and most new sources, you have four treatment compliance options for wastewater streams:

Option T1: Reduce outlet concentration to less than 50 ppmw [§63.138(b)(1)]

Use a treatment unit that discharges HAP at less than 50 ppmw.

Note: You cannot use biological treatment units or dilution with this option.

Option T2: Use a design steam stripper [§63.138(d)]

Use a steam stripper that meets the following specific design and operating requirements:

- minimum active column height of 5 meters
- countercurrent flow configuration with a minimum of 10 actual trays
- minimum steam flow rate of 0.04 kg/liter of wastewater feed to the column
- minimum wastewater feed temperature of 95°C, or minimum column temperature of 95°C
- maximum liquid loading of 67,100 liters/hr/m^2
- operate at atmospheric pressure

You are exempt from initial compliance demonstration requirements for option T2.

Option T3: Mass reduction [§63.138(e), (f), and (g)]

You have the following eight mass reduction options that vary in their required reductions depending on the type of treatment unit you use, the types of wastewater streams that you treat, and the specific compliance level:

For option...	You may use the following type of treatment unit...	You must reduce the HAP in the following streams...	By this amount...
T3A	noncombustion, nonbiological	Group 1	99%
T3B	noncombustion, nonbiological	Group 1	weighted average Fr value
T3C	combustion	Group 1	99%
T3D	combustion	Group 1	weighted average Fr value
T3E	noncombustion (including closed biological)	Group 1	required mass removal
T3F	closed biological	Group 1 and Group 2	95% required mass removal
T3G	open or closed biological	Group 1	required mass removal
T3H	open or closed biological	Group 1 and Group 2	95% required mass removal

If you comply with option **T3A or T3C**, your treatment unit must reduce the mass of total Table 9 HAP that it receives by at least 99 percent. Generally, this would be a good option to use if the treatment unit is used only for Group 1 streams that contain HAP with fraction removal (Fr) values of 0.99. Note that these options are not allowed for biological treatment units.

If you comply with option **T3B or T3D**, your treatment unit must achieve an overall Table 9 HAP mass reduction that is equal to or greater than the weighted average of the Fr values for the HAP in the wastewater stream. For example, if your Group 1 wastewater stream has one HAP with an Fr value of 0.99 and an equal amount of a second HAP with an Fr value of 0.95, then your treatment unit must achieve an overall reduction of at least 97 percent (see "How do I show initial compliance with the treatment compliance options" beginning on page 5-13 for more information). You might want to choose one of these options if you treat only Group 1 streams, the HAP in your wastewater stream have different Fr values, and you cannot achieve an overall 99 percent reduction. These options also are not allowed for biological treatment units.

> The Fr values are specified in Table 9 of subpart G. These values are equivalent to the mass percentage reduction that would be achieved using the design steam stripper.

To comply with option **T3E**, you must determine the required mass removal (RMR) for each of your Group 1 streams. Your treatment unit must then have an actual mass removal (AMR) rate that meets or exceeds the sum of the RMR's for wastewater streams that will be combined for treatment. This option may be advantageous if you treat both Group 1 and Group 2 streams because the Table 9 HAP in your Group 2 streams can contribute to the total mass reduction. This means that the percentage reduction achieved by the treatment unit can be lower than for the percentage reduction options. Also note that this option is available for biological treatment units only if they are closed units. Option **T3F** is similar to option T3E, except that required mass removal is specified as 95%, it is only allowed for closed biological treatment units, and the required mass removal **must** be applied to both the Group 2 and Group 1 streams that are combined for treatment in the biological unit. **Options T3G and T3H** are similar to options T3E and T3F, except that the compliance procedures are designed specifically for open biological treatment units.

> The required mass removal is the hourly mass of Table 9 HAP that must be removed or destroyed in the treatment unit. It is determined using weighted average Fr values for the Table 9 HAP in the wastewater stream (see "How do I show initial compliance with the treatment compliance options" for more information).

Option T4: Use a RCRA unit [§63.138(h)]

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.

> You are exempt from initial compliance requirements, monitoring, and associated recordkeeping and reporting requirements under Subpart MMM if you comply with option T4.

For **new sources**, you have the same four options described above, except you must comply with either option T3A, T3B, or T4 if the total mass flow rate of HAP in wastewater from the affected source is 2,100 Mg/yr or more.

Instead of treating the wastewater yourself, you may transfer it to someone else for treatment. Whoever agrees to treat the wastewater must comply with the requirements in subpart MMM. You must also meet all of the following if you decide to transfer the wastewater to someone else for treatment:

- comply with the emission suppression and control device options prior to transfer
- include a notice with the shipment of each Group 1 wastewater stream or residual (or each time there is a change in the required treatment) stating that the stream contains HAP that are to be controlled as specified in subpart MMM
- obtain written certification from the treatment facility stating that they will comply with subpart MMM

Note: If the wastewater stream contains <50 ppmw of partially soluble HAP, the offsite facility does not have to comply with the emission suppression requirements (i.e., covers on waste management units prior to the activated sludge unit) if the treatment is performed in a biological treatment unit, and you demonstrate that <5 percent of the soluble HAP is emitted prior to the activated sludge unit. See Tables 2 and 3 to subpart MMM for listings of partially soluble HAP and soluble HAP, respectively. [§63.1362(d)(14)]

How do I show initial compliance with the emission suppression compliance requirements?

You must conduct an initial inspection of waste management units and closed-vent systems that transport emissions to control devices. These inspections are identical to inspections that must be performed periodically to demonstrate ongoing compliance. To avoid repetition, inspection requirements are summarized in “What monitoring must I do to comply with the emission suppression requirements for waste management units?” (page 5-22).

How do I show initial compliance with the treatment compliance requirements?

You must conduct either a design evaluation or a performance test to demonstrate initial compliance with treatment compliance **Option T1** and all versions of **Option T3**.

General Requirements for Performance Tests

To demonstrate compliance using a performance test, you must meet all of the following: [§63.145(a)]

- demonstrate compliance under "representative" conditions for the process(es)
- demonstrate compliance when the treatment unit is operating at representative inlet flowrate and concentration
- collect and analyze wastewater samples using the test methods and procedures specified in §§63.144(b)(5)(i) through (iii) and 63.1365(b)(8)
- take concentration and flow measurements at the same time
- a test consists of at least 3 test runs, each for a 1-hour period; take samples at approximately equally-spaced time intervals over each 1-hour period

For a performance test of a biological treatment process (**Options T3E, T3F, T3G, and T3H**), you may consider the inlet to the equalization tank to be the inlet to the treatment process if you meet all of the following:

- wastewater is conveyed by hard-piping from either the previous treatment process or the POD to the equalization tank
- wastewater is conveyed by hard-piping from the equalization tank to the biological treatment process (i.e., there are no waste management units between the equalization tank and the biological process unit)
- the equalization tank has a fixed roof with a closed vent system transports emissions to an air pollution control device

Specific Performance Test Requirements for Treatment Compliance Options

Specific requirements for performance tests that you use to demonstrate initial compliance with **option T1** or any variation of **option T3** are specified in §63.145 and summarized in Table 5-1.

For the mass reduction compliance options, the procedures described in Table 5-1 are for either a single treatment unit or a series of treatment units that are connected by hard-piping (i.e., when you determine flow rate and concentrations for the treatment unit, the inlet is prior to the first treatment unit in the series, and the outlet is the exit from the last treatment unit in the series).

If you use a series of treatment processes that are **not** connected by hard-piping, then you must apply the procedures in the table to each individual treatment unit in the series and sum the resulting reductions from each unit to determine if you are in compliance.

Note: You do not have to sum the mass reductions from all of the units if each unit is designed to remove different HAP. For example, suppose wastewater streams that contain both toluene and methanol are sent to a series of treatment units where the first unit removes a mass of toluene that exceeds the Fr value for toluene, and the second unit removes a mass of methanol that exceeds the Fr value for methanol. In this case, you can do calculations around just the first unit to demonstrate compliance for toluene, and around just the second device for methanol.

TABLE 5-1. Performance Testing Requirements for Treatment Units

For option...	For each test run, determine the...	And calculate the...	You have demonstrated compliance if...	According to this section of the rule...
T1 (noncombustion and nonbiological treatment units)	concentration of Table 9 HAP at the outlet of the treatment unit	average concentration of Table 9 HAP at the outlet of the treatment unit over all of the test runs	the sum of the Table 9 HAP averaged over the 3 runs is <50 ppmw	§63.145(b)
T3A (noncombustion and nonbiological treatment units)	• Table 9 HAP concentrations at inlet and exit of the treatment unit • wastewater flowrate entering and exiting the treatment unit[a]	• average mass flow rate of Table 9 HAP entering and exiting the treatment unit over all of the test runs (use equations WW1 and WW2) • percent removal	the calculated percent removal is ≥99 percent	§63.145(c)
T3B (noncombustion and nonbiological treatment units)	• Table 9 HAP concentrations at inlet and exit of the treatment unit • wastewater flowrate entering and exiting the treatment unit[a]	• average mass flow rate of Table 9 HAP entering and exiting the treatment unit over all of the test runs (use equations WW1 and WW2) • percent removal in the treatment unit • flow-weighted average of the Fr values for the Table 9 HAP entering the treatment unit (use equation WW8)	the calculated percent removal is greater than or equal to the flow-weighted average of the Fr values	§63.145(c)
T3C (combustion treatment units)	• Table 9 HAP concentration in wastewater entering the combustion unit • wastewater flowrate entering the combustion unit • Table 9 HAP concentration in the vented gas stream exiting the combustion unit • volumetric flowrate of the vented gas stream exiting the combustion unit	• average mass flow rate of Table 9 HAP entering the combustion treatment unit over all of the test runs (use equation WW4) • average mass flow rate of Table 9 HAP exiting the combustion treatment unit in the vented gas stream (use equation WW6) • destruction efficiency of the combustion treatment unit for Table 9 HAP	the calculated destruction efficiency is ≥99 percent	§63.145(d)

TABLE 5-1. (cont'd)

For option...	For each test run, determine the...	And calculate the...	You have demonstrated compliance if...	According to this section of the rule...
T3D (combustion treatment units)	• Table 9 HAP concentration in wastewater entering the combustion unit • Table 9 HAP concentration in the vented gas stream exiting the combustion unit • volumetric flowrate entering the combustion treatment unit • volumetric flowrate of the vented gas stream exiting the combustion unit	• average mass flow rate of Table 9 HAP entering the combustion treatment unit over all of the test runs (use equation WW4) • average mass flow rate of Table 9 HAP exiting the combustion treatment unit in the vented gas stream over all of the test runs (use equation WW6) • flow-weighted average of the Fr values for the Table 9 HAP entering the combustion treatment unit (use equation WW8) • destruction efficiency of the combustion treatment unit for Table 9 HAP	the calculated destruction efficiency is greater than or equal to the flow-weighted average of the Fr values	§63.145(d)
T3E (noncombustion and closed biological treatment units)	• Table 9 HAP concentration in each Group 1 wastewater stream at its POD[b] • Table 9 HAP concentration at the inlet and outlet of the treatment unit • flowrate of each Group 1 wastewater stream at its POD[b] • flowrate of wastewater at inlet and outlet of the treatment unit[a]	• RMR for each Group 1 wastewater stream over all of the test runs (use equation WW9, which requires the HAP Fr values) • sum of the RMR values for all of the Group 1 wastewater streams • average mass flowrate of Table 9 HAP entering and exiting the treatment unit over all of the test runs (use equations WW1 and WW2) • difference between the average mass flowrates of Table 9 HAP entering and exiting the treatment unit (this is the actual mass removal [AMR])	the AMR for the treatment unit is greater than or equal to the sum of the RMR's for the Group 1 wastewater streams that are treated in the treatment unit	§63.145(e)

TABLE 5-1. (cont'd)

For option...	For each test run, determine the...	And calculate the...	You have demonstrated compliance if...	According to this section of the rule...
T3F (closed biological treatment units)	• Table 9 HAP concentration in each Group 1 and Group 2 wastewater stream at its POD[b] • flowrate of each Group 1 and Group 2 wastewater stream at its POD[b] • Table 9 HAP concentration at the inlet and outlet of the treatment unit • flowrate of wastewater at inlet and outlet of the treatment unit[a]	• RMR for each Group 1 and Group 2 wastewater stream (use equation WW9a; note that the RMR is 95 percent of the mass of HAP in each wastewater stream) • sum of the RMR values for all of the Group 1 and Group 2 wastewater streams • average mass flowrate of Table 9 HAP entering and exiting the treatment unit over all of the test runs (use equations WW1 and WW2) • difference between the average mass flowrates of Table 9 HAP entering and exiting the treatment unit (this is the AMR)	the AMR for the closed biological treatment unit is greater than the sum of the RMR's for all of the Group 1 and Group 2 wastewater streams that are treated in the closed biological treatment unit	§63.145(e)
T3G (open or closed biological treatment units)[c]	• Table 9 HAP concentration in each Group 1 wastewater stream at its POD[b] • flowrate of each Group 1 wastewater stream at its POD[b] • Table 9 HAP concentration at the inlet and outlet of the treatment unit • flowrate of wastewater at inlet and outlet of the treatment unit[a]	• RMR for each Group 1 wastewater stream over all of the test runs (use equation WW11, which requires the HAP Fr values) • sum of the RMR values for all of the Group 1 wastewater streams • fraction of Table 9 HAP biodegraded in the treatment unit (determined using procedures in §63.145(h) and appendix C to 40 CFR part 63) • average HAP mass flow rate entering the biological treatment unit over all of the test runs (use equation WW1) • AMR for the biological treatment unit (multiply the average mass flow rate entering the treatment unit by the average fraction biodegraded)[d]	the AMR for the biological treatment unit is greater than or equal to the sum of the RMR's for Group 1 wastewater streams treated in the biological treatment unit	§63.145(f)

TABLE 5-1. (cont'd)

For option...	For each test run, determine the...	And calculate the...	You have demonstrated compliance if...	According to this section of the rule...
T3H (open or closed biological treatment units)[c]	• Table 9 HAP concentration in each Group 1 and Group 2 wastewater stream (that are combined for treatment in the treatment unit) at its POD[b] • flowrate of each Group 1 and Group 2 wastewater stream at its POD[b] • Table 9 HAP concentration at the inlet and outlet of the treatment unit • flowrate of wastewater at inlet and outlet of the treatment unit[a]	• RMR for each Group 1 and Group 2 wastewater stream (use equation WW9a; note that the RMR is 95 percent of the mass of HAP in each wastewater stream) • sum of the RMR values for all of the Group 1 and Group 2 wastewater streams • average HAP mass flowrate entering the treatment unit over all of the test runs (use equation WW1) • fraction of the Table 9 HAP biodegraded in the treatment unit (determined using procedures in §63.145(h) and appendix C to 40 CFR part 63) • AMR for the treatment unit (multiply the average mass flow rate entering the treatment unit by the fraction biodegraded)[d]	the AMR for the open or closed biological treatment unit is greater than or equal to the sum of the RMR's for all of the Group 1 and Group 2 wastewater streams that are treated in the open or closed biological treatment unit	§63.145(g)

[a] Only one measurement is needed if the outlet flow is not greater than the inlet flow.
[b] The determination may be made downstream of the POD if you adjust the measured concentration to account for combination of streams or treatment.
[c] You do not need to conduct a performance test if the biological treatment unit meets the definition of an "enhanced biological treatment unit" (see §63.111 for the definition), and at least 99 percent of the Table 9 HAP by weight are included on list 1 in Table 36 to subpart G.
[d] Note that a different calculation is required if the biological treatment unit is part of a series of treatment units and the treatment units are connected by hard-piping; see equation WW13 in §63.145(f)(5) for more information.

Design evaluations for Treatment Units [§63.138(j)(1)]

If you elect to demonstrate initial compliance with a treatment compliance option by conducting a design evaluation, you must provide documentation that addresses the operating characteristics of the treatment process. The design evaluation also must be based on operation at a representative wastewater stream flow rate and a Table 9 HAP concentration under which it would be most difficult to demonstrate compliance.

If you comply with **Option T3E, T3F, T3G, or T3H** using a closed biological treatment unit, you must use a mass balance to determine the AMR in the biological treatment unit as follows:

- step 1: determine mass flow rate of Table 9 HAP entering the biological unit
- step 2: determine mass flow rate of Table 9 HAP exiting the biological unit in the discharged wastewater
- step 3: determine the mass flow rate of Table 9 HAP exiting the biological treatment unit in the vented gas stream
- step 4: the AMR is calculated by subtracting the values in steps 2 and 3 from the value in step 1

How do I show initial compliance with the control device compliance requirements?

Subpart MMM requires you to conduct either a design evaluation or a performance test for each control device you use to comply with **Option A1, A2, A3, or A4**.

Design evaluation [§63.139(d)(2)]

The specific parameters that you must consider in a design evaluation vary depending on the type of control device that you use. The requirements are summarized in Table 5-2.

TABLE 5-2. Characteristics to Consider in Design Evaluations for Control Devices

If you comply with ...[a]	And you are using the following control device ...	Then you must consider these characteristics...	And establish the following...
option A1 or A2	thermal vapor incinerator	• vent stream composition • constituent concentration • flow rate	• design minimum temperature in combustion zone • design average temperature in combustion zone • combustion zone residence time
	catalytic vapor incinerator	• vent stream composition • constituent composition • flow rate	• design minimum temperature across the catalyst bed • design average temperature across the catalyst bed • design minimum outlet temperature • design average outlet temperature

TABLE 5-2. (cont'd)

If you comply with ...[a]	And you are using the following control device ...	Then you must consider these characteristics...	And establish the following...
	boiler or process heater	• vent stream composition • constituent concentration • flowrate	• design minimum flame zone temperature • design average flame zone temperature • design minimum combustion zone residence time • design average combustion zone residence time • description of method and location where the vent stream is introduced to the flame zone
	condenser	• vent stream composition • constituent concentration • flowrate • relative humidity • temperature	• design outlet organic compound concentration levels • design average temperature of the condenser exhaust vent stream • design average temperatures of the coolant fluid at the condenser inlet and outlet
	regenerative carbon adsorber	• vent stream composition • constituent concentration • flow rate • relative humidity • temperature	• design exhaust vent stream organic compound concentration level • adsorption cycle time • number and capacity of carbon beds • type and working capacity of activated carbon used • design total regeneration stream mass or volumetric flow rate • design carbon bed temperature after regeneration • design carbon bed regeneration time • design service life of the carbon
	non-regenerative carbon adsorber	• vent stream composition • constituent concentration • mass or volumetric flowrate • relative humidity • temperature	• design exhaust vent stream organic compound concentration level • capacity of carbon bed • type and working capacity of activated carbon • design carbon replacement interval
	scrubber	• vent stream composition • constituent concentration • liquid-to-vapor ratio • scrubbing liquid flow rate and concentration • temperature • reaction kinetics of the constituents with the scrubbing liquid	• design exhaust vent stream organic compound concentration level • type and total number of theoretical and actual trays for a tray column • type and total surface area of packing, by section, for a packed column

TABLE 5-2. (cont'd)

If you comply with ...[a]	And you are using the following control device ...	Then you must consider these characteristics...	And establish the following...
Option A3	enclosed combustion device	none specified	none specified
option A4	flare	• constituent concentration • constituent heat of combustion • flow rate • cross-sectional area of the flare tip	• vent gas heating value • vent gas exit velocity • conduct Method 22 visible emissions test

[a] Each option is described in the section "What are my compliance options for air pollution control devices?" beginning on page 5-9.

Performance test [§§63.1362(d)(12) and (13), 63.139(d)(1), and 63.145(a), (i), and (j)]

Your performance testing requirements are summarized in the following table:

If you comply with ...[a]	then you must ...	you have demonstrated initial compliance if...	according to this section of the rule...
option A1	• conduct the performance test under representative process unit operating conditions and when control device is operating at a representative inlet flow rate and concentration *(Note: If the control device operates over several sets of representative conditions, test under one set, and supplement test results with modeling and/or engineering assessment to demonstrate performance over the range)* • use specified test methods and procedures to select sampling site, determine flow rate, and measure organic HAP or TOC concentration • calculate mass rate of TOC or total organic HAP entering and existing the control device (use equations WW16 and WW17) • calculate the mass percent reduction	the calculated mass reduction is $\geq$95 percent	§§63.145(a) and (i), and 63.1362(d)(12)
option A2	• conduct performance test under conditions, and using test methods and procedures, as specified above for option A1 • correct measured outlet TOC or total organic HAP concentration to account for supplemental gases	the corrected concentration is $\leq$20 ppmv	§§63.1362(d)(13) and 63.145(a) and (i)
option A4	• determine visible emissions using Method 22 for 2-hour period • determine vent stream heating value and exit velocity	you meet the criteria specified in §63.11(b)	§§63.11(b) and 63.145(j)

[a] Each option is described in the section "What are my compliance options for air pollution control devices?" beginning on page 5-9.

What monitoring must I do to comply with the emission suppression requirements for waste management units?

Your monitoring requirements consist of a variety of inspections and repairs. The specific requirements depend on the compliance option you select. Details for each emission suppression compliance option are specified in Table 5-3.

Note: If your emission suppression compliance option includes a closed vent system and control device, see "What monitoring must I do for my air pollution control device?" and "How do I inspect my closed-vent systems?" on pages 5-28 through 5-30 for additional information.

Note: If necessary, you may designate parts of covers, fixed roofs, and enclosures as unsafe-to-inspect or difficult-to-inspect. Your requirements for these designated parts of emission suppression devices are the same as for sections of closed-vent systems that you designate as unsafe-to-inspect or difficult-to-inspect (see "How do I inspect my closed-vent systems?" on page 5-30 for additional information. [§63.1366(h)(6) and (7)]

TABLE 5-3. Inspection Requirements for Waste Management Units

If you have a(n) ...	And you comply with option...[a]	Then you must ...	At this frequency...	Using...	According to this section of the rule...
wastewater tank	WT1	inspect fixed roof and all openings for leaks (*note that these inspections are not required if your fixed roof is maintained under negative pressure*)	initially	Method 21	§63.133(b)(1), (b)(4), §63.1366(h), and Table 11 to subpart G
			semiannually	sensory observations	§63.133(b)(1), (b)(4), §63.1366(h), and Table 11 to subpart G
	WT2	inspect floating roof in accordance with §63.120(a)(2) and (a)(3), and check for control equipment failures such as a rim seal that is detached from the floating roof or gaps between the seal and the wall of the wastewater tank as listed in §63.133(g)(1)(i) through (viii)	varies depending on number of seals and the option selected	visual observations	§63.133(c), (g)(1), and (g)(2); §63.143(a); and Table 11 to subpart G
	WT3	measure floating roof seal gaps in accordance with §63.120(b)(3)(i) through (4), and inspect the seals for compliance with design criteria specified in §63.120(b)(5) and (6) (i.e., inspect for control equipment failures such as a rim seal that is detached from the floating roof or gaps between the seal and the wall of the wastewater tank as listed in §63.133(g)(1)(i) through (viii)) *Note: §63.133(e) specifies procedures to follow if you determine that it is unsafe to perform the seal gap measurement or inspections*	initially and once every 5 years for the primary seal; both initially and annually for the secondary seal	visual observations	§63.133(d), (g)(1), and (g)(3); §63.143(a); and Table 11 to subpart G
	WT1, WT2, or WT3	inspect wastewater tank for control equipment failures such as a cracked cover or door	initially and semiannually	visual observations	§63.133(g)(1)(ix), (g)(3), §63.43(a), and Table 11 to subpart G
	WT1, WT2, WT3, or WT4	inspect wastewater tank for improper work practices (e.g., leaving an access door open when not in use)	initially and semiannually	visual observations	§63.133(f), §63.143(a), and Table 11 to subpart G

TABLE 5-3. (cont'd)

If you have a(n) ...	And you comply with option...[a]	Then you must ...	At this frequency...	Using...	According to this section of the rule...
	WT1, WT2, WT3, or WT4	repair defects (e.g., improper work practices or control equipment failures) within 45 calendar days of detection, unless a delay of repair or an extension is allowed	each time a defect is detected	N/A	§§63.133(h) and 63.140
surface impoundment	S1	inspect the cover and all openings for leaks (*note that these inspections are not required if your cover is maintained under negative pressure)*	initially	Method 21	§63.134(b)(3), (4), and (5), §63.1366(h), and Table 11 to subpart G
			semiannually	sensory observations	§63.134(b)(3), (4), and (5), §63.1366(h), and Table 11 to subpart G
	S1 or S2	visually inspect the surface impoundment for both of the following defects: • improper work practices (e.g., leaving an access hatch or other closure device open when not in use) • control equipment failures (e.g., cracks or gaps in the cover or closure devices)	initially and semiannually	visual observations	§63.134(c), §63.143(a), and Table 11 to subpart G
		repair defects within 45 calendar days of detection, unless a delay of repair is allowed	each time a defect is detected	N/A	§§63.134(d) and 63.140
container	C1	inspect cover and all openings for leaks	initially	Method 21	§63.135(b)(1) and (b)(2)(ii), §63.1366(h), and Table 11 to subpart G
			semiannually	sensory observations	§63.135(b)(1) and (b)(2)(ii), §63.1366(h), and Table 11 to subpart G

TABLE 5-3. (cont'd)

If you have a(n) ...	And you comply with option...[a]	Then you must ...	At this frequency...	Using...	According to this section of the rule...
	C3	inspect the enclosure and all openings for leaks (*note that inspections are not required if you maintain the enclosure under negative pressure)*	initially	Method 21	§63.135(d)(1) and (4), §63.1366(h), and Table 11 to subpart G
			semiannually	sensory observations	§63.135(d)(1), (d)(4), and Table 11 to subpart G
	C1 or C2	inspect the container for both of the following types of defects: • control equipment failures (e.g., a cover that is broken or has a crack or gap) • improper work practices (e.g., leaving an access hatch open when not in use)	initially and semiannually	visual observations	§63.135(e), §63.143(a), and Table 11 to subpart G
		repair defects due to control equipment failures and improper work practices within 15 calendar days after detection, unless a delay of repair is allowed	each time a defect is detected	N/A	§§63.135(f) and 63.140
individual drain system	D1	inspect the cover and all openings for leaks *(note that you are not required to conduct these inspections if your cover is maintained under negative pressure)*	initially	Method 21	§63.136(b)(1)(i) and (b)(4), §63.1366(h), and Table 11 to subpart G
			semiannually	sensory observations	§63.136(b)(1)(i), §63.1366(h), and Table 11 to subpart G
		inspect the individual drain system for both of the following types of defects: • control equipment failures (e.g., a cover that is broken or cracked) • improper work practices (e.g., leaving an access hatch open when not in use)	initially and semiannually	visual observations	§63.136(c), §63.143(a), and Table 11 to subpart G

TABLE 5-3. (cont'd)

If you have a(n) ...	And you comply with option...[a]	Then you must ...	At this frequency...	Using...	According to this section of the rule...
	D2	verify that sufficient water is present to maintain each water seal	initially and semiannually	visual observation, flow monitoring device, or continuous drip into the drain	§63.136(e)(1)(i), §63.143(a), and Table 11 to subpart G
		inspect tightly fitting caps and plugs on drains for defects such as gaps, cracks, or holes	initially and semiannually	visual observations	§63.136(f)(1), §63.143(a), and Table 11 to subpart G
		inspect covers on junction boxes for defects such as gaps, cracks, or holes	initially and semiannually	visual observations	§63.136(f)(2), §63.143(a), and Table 11 to subpart G
		inspect unburied portion of sewer line for defects such as cracks and gaps	initially and semiannually	visual observations	§63.136(f)(3), §63.143(a), and Table 11 to subpart G
	D1 or D2	repair defects within 15 calendar days after detection unless a delay of repair is allowed	each time a defect is detected	N/A	§§63.136(d), (g), and 63.140
oil-water separator	O1	inspect fixed roof an all openings for leaks *(note that the inspection is not required if the fixed roof is maintained under negative pressure)*	initially	Method 21	§63.137(b)(1) and (b)(4), §63.1366(h), and Table 11 to subpart G
			semiannually	sensory observations	§63.137(b)(1) and (b)(4), §63.1366(h), and Table 11 to subpart G

TABLE 5-3. (cont'd)

If you have a(n) ...	And you comply with option...[a]	Then you must ...	At this frequency...	Using...	According to this section of the rule...
	O2	inspect the oil-water separator for control equipment failures such as a rim seal that is detached from the floating roof or gaps between the seal and the oil-water separator wall as listed in §63.137(e)(1)(i) through (vi)	initially and every five years for the primary seal, and initially and annually for the secondary seal	procedures specified in §60.696(d)(1) to inspect seals and measure seal gaps	§63.137(c), (e)(1)(i) through (vi), and (e)(2), §63.143(a), and Table 11 to subpart
	O1 or O2	inspect the oil-water separator for improper work practices (e.g., leaving an access door open when not in use)	initially and semiannually	visual observations	§63.137(d), 63.143(a), and Table 11 to subpart G
		inspect the oil-water separator for control equipment failures such as a cracked cover or door	initially and semiannually	visual observations	§63.137(e)(1)(vii), (e)(3), §63.143(a), and Table 11 to subpart G
		repair improper work practices and control equipment failures within 45 calendar days of detection unless a delay of repair is allowed	each time a defect is detected	N/A	§§63.137(f) and 63.140

[a] The emission suppression compliance options are described on pages 5-4 through 5-9.

What monitoring must I do for my wastewater treatment unit?

To demonstrate ongoing compliance with the compliance options for treatment units, you must monitor operating parameters for the treatment unit. Subpart MMM specifies the parameters to monitor only for steam strippers. For all other treatment units, you must determine both the parameters that demonstrate proper operation of the treatment and the frequency at which they should be monitored. You must then submit a request for approval to monitor according to that plan. The following table summarizes the requirements:

If you use a ...	And you comply with option...[a]	Then you must ...	At this frequency...	According to this section of the rule...
Biological treatment unit	T3E, T3F, T3G, or T3H	Request approval to monitor appropriate parameters that demonstrate proper operation of the biological treatment unit	As specified by the permitting authority	§63.1366(b)(1)(vii), §63.143(c) and Table 12 to subpart G
Steam stripper	T1, T2, T3A, T3B, or T3E	monitor each of the following: • steam flow rate • wastewater feed mass flow rate • either wastewater feed temperature or column operating temperature	continuously	§63.1366(b)(1)(xii), §63.143(b), and Table 12 to subpart G
Any other treatment unit[b]	T1, T3A, T3B, T3C, T3D, or T3E	Use your precompliance report (or the procedures in §63.8(f)) to request approval to monitor appropriate parameters that demonstrate proper operation of your treatment process	As specified by the Administrator	§63.1366(b)(1)(xii), §63.143(d), and Table 12 to subpart G

[a] The treatment compliance options are described on pages 5-9 through 5-13.
[b] You may also use this procedure to request approval to monitor parameters for a steam stripper that differ from those specified in this table.

What monitoring must I do for my air pollution control device?

To demonstrate ongoing compliance with compliance options A1, A2, A3, and A4 for air pollution control devices, you must monitor one or more operating parameters as specified in Table 5-4.

TABLE 5-4. Monitoring Requirements for Control Devices

If you use a ...	And you comply with option...	Then you must ...	At this frequency[a,b]...	According to this section of the rule...
Thermal incinerator	A1, A2, or A3	Monitor firebox temperature	Continuously	§63.143(e)(1) and Table 13 to subpart G
Boiler or process heater <44 MW (and vent stream is not mixed with the primary fuel)	A1, A2, or A3	Monitor combustion temperature	Continuously	§63.143(e)(1) and Table 13 to subpart G
Catalytic incinerator	A1 or A2	Do either of the following: • Monitor temperature upstream of the catalyst bed • Install temperature monitors upstream and downstream of the catalyst bed, and monitor the temperature difference across the catalyst bed	Continuously	§63.143(e)(1) and Table 13 to subpart G
Condenser	A1 or A2	Monitor condenser exit (product side) temperature	Continuously	§63.143(e)(1) and Table 13 to subpart G
Carbon adsorber (regenerative)	A1 or A2	Monitor each of the following: • Total regeneration stream mass or volumetric flow during regeneration • Temperature of carbon bed after regeneration • Temperature of carbon bed within 15 minutes of completing a cooling cycle	Each regeneration cycle	§63.143(e)(1) and Table 13 to subpart G
Carbon adsorber (non-regenerative)	A1 or A2	Monitor organic compound concentration at adsorber outlet, or	Daily, or at intervals no greater than 20% of the design carbon replacement interval, whichever is greater	§63.143(e)(1) and Table 13 to subpart G
		Replace the carbon at a regular predetermined interval that is less than the time interval corresponding to the maximum design flow rate and organic concentration in the gas stream	At calculated intervals	§63.143(e)(1) and Table 13 to subpart G

TABLE 5-4. (cont'd)

If you use a ...	And you comply with option...	Then you must ...	At this frequency[a,b]...	According to this section of the rule...
Flare	A4	monitor for presence of flame at the pilot light	continuously (with hourly records)	§63.143(e)(1) and Table 13 to subpart G

[a] As an alternative to any of the parameter monitoring requirements specified in this table, you may instead continuously monitor the organic concentration at the outlet of the control device. [§63.143(e)(2)]
[b] You may request approval to monitor parameters other than those specified in this table. [§63.143(e)(3)]

How do I inspect my closed-vent systems?

Your inspection requirements for closed-vent systems that are used to transport organic vapors from a waste management unit to a control device are the same as for closed-vent systems used to transport vapors from a process vent to a control device. Therefore, see "How do I inspect my closed-vent systems?" on page 3-19 in chapter 3 for more information. [§63.1366(h)(6) and (7)]

What are my compliance options for heat exchange systems?

If you have heat exchange systems (as defined on page 5-2), you have two compliance options. These options require you to monitor for leaks and repair leaks that you detect, unless you are exempt. The requirements are the same for both existing and new affected sources:

Exemptions [§63.104(a)(1) through (6)]

You are exempt from the heat exchange system compliance options if your system meets any of the following six conditions:

- The minimum pressure on the cooling water side of the heat exchange system is at least 35 kPa greater than the maximum pressure on the process side
- There is an intervening cooling fluid, containing less than 5 percent by weight of HAP listed in Table 4 to subpart F of part 63, between the process and the cooling water (and the intervening fluid is not sent through a cooling tower or discharged).
- You have a once-through heat exchange system that is subject to a National Pollution Discharge Elimination System (NPDES) permit with an allowable discharge limit of that is either:
  - 1 ppm or less above influent concentration, or
  - 10 percent or less above the influent concentration.

- You have a once-through heat exchange system that is subject to an NPDES permit that includes all of the following:
  - requires monitoring of a parameter(s) or condition(s) to detect a leak of process fluids into cooling water,
  - specifies or includes the normal range of the parameter or condition,
  - requires monitoring for the parameter selected as leak indicators no less frequently than monthly for the first 6 months and quarterly thereafter, and
  - requires you to report and correct leaks to the cooling water when the parameter or condition is outside the normal range.
- You have a recirculating heat exchange system that is used to cool process fluids that contain less than 5 percent by weight of total HAP listed in Table 4 to Subpart F of part 63.
- You have a once-through heat exchange system that is used to cool process fluids that contain less than 5 percent by weight of total HAP listed in Table 9 to Subpart G of part 63.

Option HE1: Monitor HAP or other representative substances [§63.104(b)]

Implement a monitoring program for one or more HAP or other representative substances (e.g., total HAP, total VOC, one or more speciated HAP, or other compounds) whose presence in cooling water indicates a leak. Your monitoring program must be conducted as follows:

- You must monitor monthly for the first 6 months and quarterly thereafter.
- Monitoring of speciated HAP or total HAP refers to the following HAP:
  - HAP listed in Table 4 to Subpart F of part 63, if you have a recirculating heat exchange system, or
  - HAP listed in Table 9 to Subpart G of part 63, if you have a once-through heat exchange system.
- Use any EPA-approved method listed in 40 CFR part 136 as long as the method is sensitive to concentrations as low as 10 ppm and you use the same method for both the entrance and exit samples.

You may use alternative methods upon approval by the Administrator.

- You must collect at least three sets of samples. The samples may be collected at the entrance and exit of each heat exchange system or at locations where the cooling water enters and exits each heat exchanger or combination of heat exchangers. Entrance and exit locations are established as follows:

If you take samples at the...	Then the entrance is the point at which...	And the exit is the point at which...	According to this section of the rule...
entrance and exit of a recirculating system	the cooling water leaves the cooling tower prior to being returned to the process equipment	the cooling water is introduced to the cooling tower after being used to cool the process fluid	§63.104(b)(4)(i)
entrance and exit of a once-through heat exchange system	the cooling water enters the plant or the PAI process unit(s)	the cooling water exits the plant or PAI process unit(s)	§63.104(b)(4)(ii)
entrance and exit of each heat exchanger or any combination of heat exchangers	the cooling water enters the individual heat exchanger or group of heat exchangers	the cooling water exits the heat exchanger or group of heat exchangers	§63.104(b)(4)(iii)

- Calculate the mean entrance concentration and the mean exit concentration. Adjust the concentration to correct for any makeup water or evaporative losses, if applicable.
- You have detected a leak if both of the following are true:
  - the exit mean concentration is greater than the entrance mean concentration based on the results of a one-sided statistical procedure at the 0.05 level of significance, and
  - the difference between the means is at least 1 ppmw or 10 percent of the entrance value, whichever is greater

See chapter 7 for a sample calculation.

Option HE2: Monitor using a surrogate indicator of leaks [§63.104(c)]

Monitor one or more surrogate indicators (e.g., ion-specific electrode monitoring, pH, or conductivity) or one or more process or other conditions that indicate a leak. Under this option, you must prepare and implement a **monitoring plan** that describes the procedures that you will use to detect process fluid leaks into the cooling water. Include the following in your plan:

You must maintain your current monitoring plan onsite. If you ever revise your plan, you must also maintain the most recent superceded plan for at least 5 years from the date of its creation (maintain onsite for at least 6 months).

- Description of the parameter(s) or condition(s) to be monitored.
- Explanation of how the selected parameter(s) or condition(s) will reliably indicate a leak.
- The parameter level(s) or condition(s) that constitute a leak, including supporting data and calculations.

  Note: Monitoring must be sufficiently sensitive to determine the range of parameter levels or conditions when the system is not leaking.

- How frequently you will monitor.

  Note: Frequency must be at least monthly during the first 6 months and at least quarterly thereafter.

- The records you will maintain.

You have a leak when the monitored parameter(s) or condition(s) exceed the threshold specified in your monitoring plan.

Note: If you identify a leak using a method that is not described in your plan, and the method(s) in your plan could not detect the leak, you must revise your plan and document the basis for the changes. The revision must be completed within 180 after you discover the leak.

Leak repair [§63.104(d) and (e)]

After you detect a leak, you must:

- Repair the leak as soon as practical (but no later than 45 calendar days after you determine that you have a leak, unless a delay of repair is allowed), and
- Within 7 calendar days after repairing the leak or startup (whichever is later), confirm that the heat exchange system has been repaired.

A **delay of repair** is allowed if:

Reporting requirements for a delay of repair are described in Table 5-7 (page 5-40).

- Equipment is isolated from the process, or
- Repair is technically infeasible without a shutdown and any one of the following conditions also apply:
  - a planned shutdown is scheduled within the next two months after you determine a delay of repair is necessary,
  - a shutdown for repair would cause greater emissions than the potential emissions from delaying repair, or

    Note: You must calculate emissions according to procedures described in §63.104(e)(2)(i)(A) and (B).

  - necessary parts or personnel were not available (for up to a maximum of 120 calendar days).

What records must I keep for my wastewater systems?

Your recordkeeping requirements for wastewater systems and heat exchange systems are presented in Table 5-5 (pages 5-34 through 5-37) and in Chapter 8.

TABLE 5-5. Recordkeeping Requirements for **Wastewater Systems** and **Heat Exchange Systems**

Categories of records are...	Then for each...	You must keep records of...	According to this section of the rule...
identification records	Group 2 wastewater stream (that is not complying with treatment option T3F or T3H)	all of the following: • process unit identification and description of process unit • stream identification code • concentration of Table 9 HAP in ppmw, including documentation of the methodology used to determine the concentration • flow rate in liters/min	§63.147(b)(8)
	wastewater stream that you determine to be Group 2 based on process knowledge of the annual average flow rate and/or HAP concentration	how process knowledge was used to determine the annual average concentration and/or annual average flow rate	§63.147(f)
	wastewater stream transferred offsite for treatment	the notice sent to the treatment operator stating that the wastewater stream or residual contains organic HAP that must be managed and treated in accordance with subpart MMM	§63.147(a)
emission suppression records	wastewater tank	• the occurrence of each required inspection (e.g., for leaks, improper work practices, and/or control equipment failures, depending on the emission suppression compliance option)	§63.147(b)(1)
		• all of the following for each seal gap measurement (Option WT2 or WT3): ▸ date of the measurement ▸ raw data ▸ calculations of width and area of each gap and total gap area	§63.147(b)(3)
		• all of the following associated with each decision to use an extension when you determine it is unsafe to perform seal gap measurements or you delay repair: • description of the failure ▸ documentation that alternate storage capacity is unavailable ▸ a schedule of actions to complete repair or empty the vessel as soon as possible	§63.147(b)(6)

TABLE 5-5. (cont'd)

Categories of records are...	Then for each...	You must keep records of...	According to this section of the rule...
	surface impoundment	the occurrence of each required inspection for improper work practices and control equipment failures	§63.147(b)(1)
	container	the occurrence of each required inspection for improper work practices and control equipment failures	§63.147(b)(1)
	individual drain system	the occurrence of each required inspection for improper work practices and control equipment failures	§63.147(b)(1)
	oil-water separator	• the occurrence of each required inspection for improper work practices and control equipment failures	§63.147(b)(1)
		• all of the following for each seal gap measurement: ‣ date of measurement ‣ raw data ‣ calculations of gap width and total gap area	§63.147(b)(3)
	waste management unit	all of the following for each delay of repair due to unavailability of parts: • description of the failure • reason additional time was necessary • date when repair was completed	§63.147(b)(7)
	closed-vent system, cover, fixed roof, or enclosure	inspections for leaks, and results of monitoring/inspection of bypass lines, as described in "What records must I keep?" in Chapter 8	§63.1367(f)
Control device records	thermal incinerator, catalytic incinerator, condenser, or boiler or process heater <44 MW	• continuously monitored parameter data (see Table 5-4) • daily averages of continuously monitored parameter data	§§63.147(b)(5), 63.147(d), and 63.1367(b)(1)
	flare	the times and duration of all periods when there is no pilot flame	§63.147(d)(1)

TABLE 5-5. (cont'd)

Categories of records are...	Then for each...	You must keep records of...	According to this section of the rule...
	regenerative carbon adsorber	all of the following for each regeneration cycle: • total regeneration stream mass flow • temperature carbon bed at end of regeneration • temperature to which the carbon bed is cooled within 15 minutes of completing the cooling cycle	§63.147(d)(2)
	nonregenerative carbon adsorber	• all of the following if you use an organic monitoring device: ‣ how the monitoring frequency was determined ‣ when the organic concentration was measured ‣ when the carbon was replaced • all of the following if you replace the carbon at a predetermined interval ‣ how the carbon replacement interval was determined ‣ when the carbon was replaced	§63.147(d)(3)
	boiler and process heater	any change in the location at which the vent stream is introduced into the flame zone	§63.147(c)
	control device that you monitor using an organic monitor rather than operating parameter monitors	• the continuously monitored organic concentration data • the daily average of the organic concentration	§§63.147(b)(5) and 63.1367(b)(1)
Treatment unit records	treatment unit other than a steam stripper	• information and actions as approved by the Administrator • each measurement of any operating parameter data	§§63.147(b)(4) and 63.1367(b)(1)
	steam stripper	all of the following continuously recorded parameter data: • steam flow rate • wastewater feed mass flow rate • wastewater feed temperature or column temperature	§§63.147(b)(5) and 63.1367(b)(1)

TABLE 5-5. (cont'd)

Categories of records are...	Then for each...	You must keep records of...	According to this section of the rule...
Heat exchange system records	heat exchange system	• monitoring data that indicate each leak • date when each leak was detected • information regarding leaks detected by procedures not in your monitoring plan, if you comply with option HE2 • basis for any determinations that monitoring results are due to a condition other than a leak • dates of efforts to repair leaks • method or procedure used to confirm repair of a leak • date repair was confirmed	§§63.104(f)(1) and 63.1362(f)

What reports must I submit for my wastewater systems?

Chapter 8 describes the notifications and reports that you may need to submit, and the dates when they must be submitted. Most of the information about wastewater systems that you will need to submit must be included in the following reports:

- notification of compliance status report
- periodic reports

Notification of compliance status report

You must include information related to wastewater systems in your notification of compliance status report as described in Table 5-6.

TABLE 5-6. Information on Wastewater Systems to Include in the Notification of Compliance Status Report[a]

For each...	Include all of the following information in your notification of compliance status report...	According to this section of the rule...
Group 2 wastewater stream	all of the identification records listed in Table 5-5	§63.146(b)(1)
wastewater stream that contains Table 9 HAP	• process unit identification • description of process unit • wastewater stream identification • Group status (Group 1 or Group 2) • statement that you designated the stream as Group 1 or both of the following: ‣ wastewater stream flowrate ‣ concentration of Table 9 HAP • treatment compliance option used • type of treatment unit(s) • waste management unit identification • intended control device for vented streams	§63.146(b)(2) and Table 15 to subpart G
treatment unit that receives, manages, or treats a Group 1 wastewater stream or residual	• treatment unit identification • description of the treatment unit • identification of all wastewater streams treated by the treatment unit • parameters to be monitored to demonstrate ongoing compliance	§63.146(b)(4) and Table 17 to subpart G
waste management unit that receives or manages a Group 1 wastewater stream or residual	• identification of the waste management unit • description of the was management unit • identification of each wastewater stream received or managed by the waste management unit (Group 1 and Group 2)	§63.146(b)(5) and Table 18 to subpart G

TABLE 5-6. (cont'd)

For each...	Include all of the following information in your notification of compliance status report...	According to this section of the rule...
residual removed from a Group 1 wastewater stream	• identification of the residual • description of the residual • identification of the wastewater stream from which the residual is removed • treatment unit from which the residual originates • fate of the residual (i.e., sold, returned to process, returned to waste management unit or treatment unit, or ≥99 percent destruction of the Table 9 HAP using nonbiological unit) • all of the following if you reduce the Table 9 HAP by ≥99 percent: ‣ identification of device used ‣ description of device used ‣ efficiency of device, including information to substantiate the stated efficiency	§63.146(b)(6) and Table 19 to subpart G
flare used to comply with an emission suppression compliance option	• flare design • results of initial compliance determination (visible emissions readings, heat content determinations, flow rate measurements, and exit velocity determination) • times and durations of all periods during the initial compliance determination when the pilot flame was absent or the monitor was not operating	§63.146(b)(7)(i)
non-flare control device used to comply with an emission suppression compliance option	• the operating range for each parameter to be monitored • either of the following from the initial compliance determination: ‣ the design evaluation, including supporting documentation ‣ the results of the performance test (operating ranges for process and control parameters, value of parameters being monitored, and applicable supporting calculations)	§63.146(b)(7)(ii)
biological treatment unit	• the operating range for parameters to be monitored as approved by the Administrator • results of the initial measurements of the parameters approved by the Administrator and any applicable supporting calculations	§63.146(b)(8)(i)
steam stripper that is not a design steam stripper	the operating range for the parameters to be monitored as listed in Table 5-5	§63.146(b)(2)(i)

TABLE 5-6. (cont'd)

For each...	Include all of the following information in your notification of compliance status report...	According to this section of the rule...
nonbiological, non-steam stripper treatment unit, and any steam stripper for which you request approval to monitor parameters other than those specified in Table 5-5	the operating range of parameters to be monitored	§63.146(b)(80(ii)
waste management unit or **treatment unit** used to comply with a treatment compliance option	either of the following used to demonstrate ongoing compliance: • design evaluation, including supporting documentation • results of the performance test, including all of the following: ‣ operating ranges of parameters ‣ value of each parameter being monitored ‣ applicable supporting calculations	§63.146(b)(9)

[a] The reporting requirements in this table for treatment units do not apply to design steam strippers or RCRA units.

Periodic report

You must include the information about wastewater systems and heat exchange systems in your periodic reports as described in Table 5-7.

TABLE 5-7. Information on Wastewater Systems and Heat Exchange Systems to Include in Your **Periodic Report**

If you have...	For which you...	Then include the following information in your periodic reports...	According to this section of the rule...
a **waste management unit** that receives, manages, or treats a Group 1 wastewater stream or residual	identified a control equipment failure during an inspection	• date of the inspection • identification of the waste management with the failure • description of the failure • description of the nature of the repair • date of repair	§63.146(c)

Table 5-7. (cont'd)

If you have...	For which you...	Then include the following information in your periodic reports...	According to this section of the rule...
a **wastewater tank** complying with option WT3	used a 30-day extension to continue using the tank more than 45 days after determining it is unsafe to inspect or perform seal gap measurements	• explanation of why it was unsafe to perform the inspection or seal gap measurement • statement that alternate storage capacity was unavailable • a schedule of actions to ensure the tank is emptied as soon as possible	§63.146(g)
a **wastewater tank** that failed an inspection for improper work practices or control equipment failures	use a 30-day extension to continue using the tank beyond 45 days after detecting the defect	• description of the failure • statement that alternate storage capacity was not available • a schedule of actions to ensure the control equipment will be repaired or the vessel will be emptied as soon as possible	§63.146(g)
a **closed-vent system** with a bypass line	comply with any emission suppression option	either of the following: • times and durations of all periods when the vent stream is diverted through the bypass or the flow monitor is not working • results of monthly inspections that show the bypass line valve has moved to the diverting position or the seal has been changed	§63.1368(g)(2)(iii)
a **thermal incinerator, catalytic incinerator, boiler or process heater, or condenser**[a]	monitor operating parameters to comply with option A1, A2, or A3[b]	• daily average of continuously monitored parameter that is outside its preestablished range[c] • list all days when insufficient monitoring data were collected • duration of each period when monitoring data were not collected for an excursion, as defined in §63.1366(b)(7)	§63.146(e)(1), Table 20 to subpart G, and §63.1368(g)(2)(ii)
a **flare**[a]	comply with option A4[b]	duration of all periods when all pilot flames are absent	§63.146(e)(1) and Table 20 to subpart G
a **regenerative carbon adsorber**[a]	monitor operating parameters to comply with option A1 or A2[b]	• identify all regeneration cycles when a monitored parameter is outside its preestablished range[c] • list all operating days when insufficient monitoring data are collected • duration of each period when monitoring data are not collected for an excursion, as defined in §63.1366(b)(7)	§63.146(e)(1) and Table 20 to subpart G

Table 5-7. (cont'd)

If you have...	For which you...	Then include the following information in your periodic reports...	According to this section of the rule...
any control device[a]	use an organic monitoring device	monitoring results for each operating day during which the daily average concentration was outside the preestablished range[c]	§63.146(e)(2)
a **biological** treatment unit	comply with option T3E, T3F, T3G, or T3H[d]	results of measurements that indicate the biological treatment unit was outside of the preestablished range[c]	§63.146(d)(1)
a **steam stripper**	comply with option T1, T2, T3A, T3B, or T3E[d]	the monitoring results for each operating day when the daily average value of any monitored parameter is outside the preestablished range[c]	§63.146(d)(2)
a **treatment unit** other than a biological unit or steam stripper	comply with option T1, T3A, T3B, T3C, T3D, or T3E[d]	the monitoring results for each operating day during which the daily average value of any monitored parameter approved by the Administrator is outside the approved range	§63.146(d)(3)
a **control device** or **treatment unit**	you request approval of monitoring procedures not specified in subpart MMM (any treatment option)	information as specified by the Administrator	§63.146(f)
a **heat exchange system**	have invoked the delay of repair provisions in §63.104(e)	• indication that a leak is present, • date the leak was detected, • identify whether the leak has been repaired, • reason(s) for the delay of repair *(note that if the reason for the delay is that you estimated that the shutdown for repair would cause more emissions than from delaying repair, you must include the emission estimation calculations)* • if the leak remains unrepaired, identify the expected date of repair, and • if you repaired the leak, identify the date the leak was successfully repaired.	§§63.104(f)(2) and 63.1368(l)

[a] You must include the specified information in your periodic report only if the conditions specified in §63.1368(g)(2)(ii) are met.
[b] Each compliance option is described in the section "What are my compliance options for air pollution control devices?" beginning on page 5-9.
[c] You determine the preestablished range as part of your initial compliance demonstration and document the values in your notification of compliance status report or operating permit.
[d] Each treatment option is described in the section "What treatment compliance options do I have for my wastewater streams?" beginning on page 5-10.

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 units and emission suppression equipment that manage, store, or treat Group 1 wastewater streams.

If you use a ...	That is controlled using ...	Then use these checklists ...	Starting on page ...
wastewater tank[a]	a fixed roof with a closed-vent system routed to a control device (Option WT1)	checklists 1 and 6 in this chapter and see next table for checklists specific to the control device	5-45 and 5-56
	an external floating roof (Option WT3)	checklist 1in this chapter and section A of checklist 3 in Chapter 4	5-45 and 4-25
	a fixed roof with an internal floating roof (Option WT2)	checklist 1 in this chapter and section A of checklist 2 in Chapter 4	5-45 and 4-21
	an external floating roof converted to an internal floating roof (Option WT2)	checklist 1 in this chapter and section A of checklist 4 in Chapter 4	5-45 and 4-22
	a fixed roof (Option WT4)	checklist 1 in this chapter	5-45
surface impoundment[a]	a cover with a closed-vent system routed to a control device (Option S1)	checklists 2 and 6 in this chapter and see next table for other checklists	5-46 and 5-56
	a floating flexible membrane cover (Option S2)	checklists 2 and 6 in this chapter	5-46 and 5-56
container[a]	a cover (Option C1 or C2)	checklists 3 and 6 in this chapter	5-48 and 5-56
	a cover and enclosure with a closed-vent system to route emissions to a control device (Option C3)	checklists 3 and 6 in this chapter and see next table for checklists specific to the control device	5-48 and 5-56
individual drain system	a cover and, if vented, routed to a process or through a closed-vent system to a control device (Option D1)	checklists 4 and 6 in this chapter and see next table for checklists specific to the control device	5-50 and 5-56
	water seal controls or a tightly fitting cap or plug for drains, tightly fitting solid covers for junction boxes (or covers vented to a control device) or closed sewer lines (Option D2)	checklist 4 in this chapter (and checklist 6 for any vented covers)	5-50 and 5-56

If you use a ...	That is controlled using ...	Then use these checklists ...	Starting on page ...
oil-water separator	a fixed roof and closed-vent system routed to a control device (Option O1)	checklists 5 and 6 in this chapter and see next table for checklists specific to the control device	5-53 and 5-56
	a floating roof (Option O2)	checklist 5 in this chapter	5-53

[a] You are exempt from the emission suppression requirements if the waste management unit is also a biological treatment unit that meets the biodegradation requirements of treatment option T3G or T3H. [§63.138(a)(3)]

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:	Starting on pages...
a scrubber	2 and 3	3-24 and 3-28
a condenser	2 and 4	3-24 and 3-30
a regenerative carbon adsorber	2 and 5	3-24 and 3-32
a nonregenerative carbon adsorber	2 and 6	3-24 and 3-34
a thermal incinerator	2 and 7	3-24 and 3-35
a catalytic incinerator	2 and 8	3-24 and 3-37
a boiler or process heater with a design heat input of <44 megawatts or for which the emission stream is not introduced with the primary fuel	2 and 9	3-24 and 3-39
a flare	2 and 11	3-24 and 3-43

The table below identifies the checklists you should use for treatment units:

For the following treatment units...	Then use these checklists in this chapter:	Starting on page...
Steam stripper (including design steam stripper)	7	5-58
Biological treatment unit	8	5-60
Other types of treatment units	8	5-60

Use checklist 9 (page 5-61) for heat exchange systems.

Checklist 1: Requirements for all wastewater tanks (emission suppression compliance options WT1, WT2, WT3, and WT4)[a]

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

Note: A “yes” response to a question in this checklist means compliance with that requirement, and a “no” response means noncompliance with the requirement. If the requirement is not applicable, indicate “N/A” in the comments column.

A.	**Monitoring and Inspection Requirements**			**Comments**
1.	Are all openings (e.g., access hatches, sampling ports, and gauge wells) closed (e.g., covered by a lid) except when in use (e.g., it is in use during wastewater sampling or removal or for equipment maintenance, inspection, or repair) (Option WT1, WT2, WT3, or WT4)? *§63.133(f)*	☐ Yes	☐ No	
B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you keep all records for at least 5 years? *§63,1367(a)*	☐ Yes	☐ No	
2.	Do you record the occurrence of each semiannual visual inspection of wastewater tanks for improper work practices (Option WT1, WT2, WT3, or WT4)? *§63.147(b)(1)*	☐ Yes	☐ No	
3.	Do you record the occurrence of each semiannual visual inspection of wastewater tanks for control equipment failures (Option WT1, WT2, or WT3)? *§63.147(b)(1)*	☐ Yes	☐ No	
4.	If your wastewater tank is equipped with a fixed roof and emissions are vented through a closed-vent system to a control device (Option WT1), do you record the occurrence of each semiannual visual inspection for leaks? *§63.147(b)(1)*	☐ Yes	☐ No	
5.	If your wastewater tank is equipped with an IFR or EFR (Option WT2, or WT3), do you record the occurrence of each periodic inspection of the seals? *§63.147(b)(1)*	☐ Yes	☐ No	
6.	For each inspection of the wastewater tank during which a control equipment failure was identified, including detached seals for an IFR or EFR, do you record and report the following in your next Periodic Report (Option WT1, WT2, or WT3): *§63.146(c)*			
	• Date of the inspection	☐ Yes	☐ No	
	• Identification of the wastewater tank having the failure?	☐ Yes	☐ No	
	• Description of the failure?	☐ Yes	☐ No	
	• Description of the nature of the repair?	☐ Yes	☐ No	
	• Date the repair was made?	☐ Yes	☐ No	

[a] The emission suppression compliance options for wastewater tanks are described in the section “What are my emission suppression compliance options?” beginning on page 5-4.

Checklist 2: Requirements for all surface impoundments (emission suppression compliance options S1 and S2)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A. Monitoring and Inspection Requirements			**Comments**
Note: Answer questions in item "1" if you comply with the requirements to cover surface impoundments in §63.134(b)(1). Answer questions in item "2" if you comply with the requirements for a floating flexible membrane cover in §63.134(b)(2).			
1. If you use a cover on a surface impoundment (Option S1), are all of the following requirements met: *§63.134(b)(1), (c)(1), and (c)(2)*			
• Are all access hatches and other openings closed except when in use (e.g., it is in use during wastewater sampling or removal or for equipment maintenance, inspection, or repair)?	☐ Yes	☐ No	
• Is all control equipment functioning properly (e.g., seals, joints, lids, covers, and doors are not cracked, gapped, or broken)?	☐ Yes	☐ No	
• Is the cover used at all times when a Group 1 wastewater or residual is in the surface impoundment, except during removal of treatment residuals or closure of the surface impoundment?	☐ Yes	☐ No	
2. If you use a floating flexible membrane cover on a surface impoundment (Option S2), are all of the following requirements met: *§63.134(b)(2)*			
• is the cover floating on the liquid surface over the entire area of the liquid surface?	☐ Yes	☐ No	
• is the floating flexible membrane cover made out of either of the following: ▸ high density polyethylene with a thickness of at least 2.5 millimeters, or ▸ a material that has an equivalent organic permeability and integrity for the intended service life of the floating cover?	☐ Yes	☐ No	
• is the floating flexible membrane cover free of visible cracks, holes, gaps, or other open spaces between cover section seams or between the cover and its foundation mountings?	☐ Yes	☐ No	
• does each opening in the cover have a closure device that when closed leaves no visible cracks, holes, gaps, or other open spaces?	☐ Yes	☐ No	
• is each closure device closed except as allowed in §63.134(b)(2)(vii)?	☐ Yes	☐ No	

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

A.	Monitoring and Inspection Requirements			Comments
	• are closure devices made of suitable materials to minimize exposure of organic HAP to the atmosphere, considering factors specified in §63.134(b)(2)(vi)?	☐ Yes	☐ No	
	• if the floating membrane cover has emergency drains for storm water removal, are they equipped with either of the following: ‣ a slotted membrane fabric cover that covers at least 90 percent of the area of the opening, or ‣ a flexible fabric seal?	☐ Yes	☐ No	

B.	Recordkeeping and Reporting Requirements (Option S1 or S2)			Comments
1.	Do you keep all records at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	
2.	Do you record the occurrence of each semiannual visual inspection of surface impoundments for improper work practices? *§63.147(b)(1)*	☐ Yes	☐ No	
3.	Do you record the occurrence of each semiannual visual inspection of surface impoundments for control equipment failures? *§63.147(b)(1)*	☐ Yes	☐ No	
4.	For each inspection of the surface impoundment during which a control equipment failure was identified, do you record and report the following in your next Periodic Report: *§63.146(c)*			
	• Date of the inspection	☐ Yes	☐ No	
	• Identification of the surface impoundment having the failure?	☐ Yes	☐ No	
	• Description of the failure?	☐ Yes	☐ No	
	• Description of the nature of the repair?	☐ Yes	☐ No	
	• Date the repair was made?	☐ Yes	☐ No	

[a] The emission suppression compliance options for surface impoundments are described in the section "What are my emission suppression compliance options?" beginning on page 5-4.

Checklist 3: Requirements for all containers (emission suppression compliance options C1, C2, and C3)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring and Inspection Requirements**			**Comments**
1.	For containers with capacity greater than or equal to 0.1 but less than or equal to 0.42 cubic meters, do you meet **all** of the following requirements (Option C1 or C2): *§63.135(b)(2) and (3)*			
	• do the containers have covers?	☐ Yes	☐ No	
	• are the covers and all openings closed (e.g., covered by a lid) except when in use (e.g., an opening is in use during filling, removal, inspection, sampling, or pressure relief events related to safety)?	☐ Yes	☐ No	
	• is all control equipment functioning properly (e.g., covers and doors are not cracked, gapped, or broken)?	☐ Yes	☐ No	
	• either of the following:	☐ Yes	☐ No	
	▸ do the containers meet the DOT specifications and testing requirements (Option C2)?			
	▸ do you inspect the covers for leaks as specified in §63.1366(h) (Option C1)?			
2.	For containers with capacity greater than 0.42 cubic meters, do you meet **all** of the following requirements (Option C1): *§63.135(b)(1), (b)(3), and (c)*			
	• do the containers have covers?	☐ Yes	☐ No	
	• do you fill the containers using a submerged fill pipe that does not extend more than 6 inches or within two fill pipe diameters of the bottom of the containers?	☐ Yes	☐ No	
	• are the covers and all openings closed (e.g., covered by a lid) when not in use (e.g., an opening is in use if it is used for the submerged fill pipe, wastewater removal, inspection, sampling, or pressure relief events related to safety)?	☐ Yes	☐ No	
	• is all control equipment functioning properly (e.g., covers and doors are not cracked, gapped, or broken)?	☐ Yes	☐ No	

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

A.	**Monitoring and Inspection Requirements**			**Comments**
3.	For containers that have a capacity greater than or equal to 0.1 cubic meters, are used to treat a Group 1 wastewater stream or residual, and it is necessary that the containers be open during treatment, are the containers located within an enclosure that has a closed-vent system to transport emissions to a control device (Option C3)? *§63.135(d)*	☐ Yes	☐ No	
B.	**Recordkeeping and Reporting Requirements (Option C1, C2, or C3)**			**Comments**
1.	Do you keep all records for at least 5 years? *§63.1367(a)(1)*	☐ Yes	☐ No	
2.	Do you record the occurrence of each semiannual visual inspection of containers for improper work practices? *§63.147(b)(1)*	☐ Yes	☐ No	
3.	Do you record the occurrence of each semiannual visual inspection of containers for control equipment failures? *§63.147(b)(1)*	☐ Yes	☐ No	
4.	For each inspection during which a control equipment failure was identified, do you record and report the following in your next Periodic report: *§63.146(c)*			
	• Date of the inspection	☐ Yes	☐ No	
	• Identification of the container having the failure?	☐ Yes	☐ No	
	• Description of the failure?	☐ Yes	☐ No	
	• Description of the nature of the repair?	☐ Yes	☐ No	
	• Date the repair was made?	☐ Yes	☐ No	
5.	Do you have a record of the capacity of each container maintained at your facility? *§63.1368(f)(1)*	☐ Yes	☐ No	

[a] The emission suppression compliance options for containers are described in the section "What are my emission suppression compliance options?" beginning on page 5-4.

Checklist 4: Requirements for all individual drain systems (emission suppression compliance options D1 and D2)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A. Monitoring and Inspection Requirements			**Comments**
Note: Answer only the questions in item "1" if you comply with the requirements to cover each opening in an individual drain system in §63.136(b) through (d). Answer only questions in items "2" through "4" if you comply with the alternative requirements for drains, junction boxes, and sewers in §63.136(e) through (g).			
1. If you cover each opening in your individual drain system (with or without a closed-vent system to route emissions to a control device or to a process), do you meet **all** of the following requirements (Option D1):			
• is the individual drain system designed and operated to segregate the vapors within the system from other drain systems and the atmosphere? *§63.136(b)(5)*	☐ Yes	☐ No	
• are the cover and all openings (e.g., access hatches, sampling ports, and gauge wells) kept closed except when in use (e.g., an opening is in use during sampling, removal, or equipment maintenance, inspection, or repair)? *§63.136(b)(1) and (c)(1)*	☐ Yes	☐ No	
• are the cover and all openings maintained in good condition? *§63.136(b)(5)*	☐ Yes	☐ No	
2. If you do not comply with the cover requirements described in item "1", do you meet **all** of the following requirements for drains (Option D2):			
• is each drain equipped with either water seal controls (e.g., p-trap, s-trap) or a tightly-fitting cap or plug? *§63.136(e)(1)*	☐ Yes	☐ No	
• for each drain equipped with a water seal, is water always present in the water seal? *§63.136(e)(1)(i)*	☐ Yes	☐ No	

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

A. Monitoring and Inspection Requirements			Comments
• if a water seal is used on a drain receiving a Group 1 process wastewater stream, do you meet **either** of the following requirements: *§63.136(e)(1)(ii)* ▸ does the drain pipe discharging the wastewater extend below the liquid surface in the water seal, or ▸ is a flexible shield (or other enclosure which restricts wind motion) installed that encloses the space between the pipe discharging the wastewater and the drain receiving the wastewater?	☐ Yes	☐ No	
3. If you do not comply with the cover requirements described in item "1", do you meet **all** of the following for junction boxes (Option D2):			
• are junction boxes equipped with tightly fitting solid covers (vented or unvented) that are free of gaps, cracks, or holes? *§63.136(e)(2)*	☐ Yes	☐ No	
• if the covers are vented, do you meet **either** of the following: ▸ is the vent pipe connected to a closed-vent system that transports emissions to a process or control device, or *§63.136(e)(2)(i)* ▸ do you meet all of the following: *§63.136(e)(2)(ii)* * is the vent pipe at least 90 centimeters in length? * is the diameter of the vent pipe less than 10.2 centimeters? * is a water seal installed at the entrance or exit of the junction box? *Note: the design requirements in §63.136(e)(2)(ii) are allowed as an alternative to venting to a process or control device only if the junction box is filled and emptied by gravity flow or it is operated with no more than slight fluctuations in the liquid level.*	☐ Yes	☐ No	
4. If you do not comply with the cover requirements described in item "1", do you meet both of the following for your sewers (Option D2): *§63.136(e)(3)*			
• are your sewer lines covered or enclosed?	☐ Yes	☐ No	
• are the covers and enclosures free of gaps, cracks, or other openings to the atmosphere?	☐ Yes	☐ No	

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

B.	**Recordkeeping and Reporting Requirements**			**Comments**
	Note: Answer questions in items "1" through "4" if you comply with the requirements to cover each opening in an individual drain system in §63.136(b) through (d). Answer questions in items "1" and "5" if you comply with the alternative requirements for drains, junction boxes, and sewer lines in §63.136(e) through (g).			
1.	Do you keep all records for at least 5 years (Option D1 or D2)? *§63.1367(a)*	☐ Yes	☐ No	
2.	Do you record the occurrence of each semiannual visual inspection of the individual drain systems for improper work practices (Option D1)? *§§63.136(c) and 63.147(b)(1)*	☐ Yes	☐ No	
3.	Do you record the occurrence of each semiannual visual inspection of the individual drain systems for control equipment failures (Option D1)? *§§63.136(c) and 63.147(b)(1)*	☐ Yes	☐ No	
4.	For each inspection during which a control equipment failure was identified, do you record and report the following in your next periodic report (Option D1): *§§63.136(c) and 63.146(c)*			
	▸ date of the inspection	☐ Yes	☐ No	
	• identification of the individual drain system having the failure?	☐ Yes	☐ No	
	▸ description of the failure?	☐ Yes	☐ No	
	▸ description of the nature of the repair?	☐ Yes	☐ No	
	▸ date the repair was made?	☐ Yes	☐ No	
5.	If you comply with the separate requirements for drains, junction boxes, and sewer lines, do you keep **all** of the following records (Option D2):			
	• documentation of the occurrence of each semiannual inspection of drains to ensure that caps or plugs are in place and properly installed? *§§63.136(f)(1) and 63.147(b)(1)*	☐ Yes	☐ No	
	• documentation of the occurrence of each semiannual verification of water supply to the drain? *§§63.136(e)(1)(ii) and 63.146(c)*	☐ Yes	☐ No	
	• documentation of the occurrence of each semiannual inspection of junction boxes to ensure that there are no gaps, cracks, or other holes in the cover? *§§63.136(f)(2) and 63.147(b)(1)*	☐ Yes	☐ No	
	• documentation of the occurrence of each semiannual inspection of the unburied portion of each sewer line to ensure that there are no cracks or gaps that could result in air emissions? *§§63.136(f)(3) and 63.147(b)(1)*	☐ Yes	☐ No	

[a] The emission suppression compliance options for individual drain systems are described in the section "What are my emission suppression compliance options?" beginning on page 5-4.

Checklist 5: Requirements for all oil-water separators (emission suppression compliance options O1 and O2)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A. Monitoring and Inspection Requirements			**Comments**
Note: Answer questions in items "1" through "8" if you comply with the requirements for Option O2 to use a floating roof in §63.137(a)(2). Answer questions in items "8" and "9" if you comply with the requirements for Option O1 to use a fixed roof and closed-vent system in §63.137(a)(1).			
1. Is the floating roof is resting on the liquid surface of the stored material, except during abnormal conditions (i.e., low flow rate)? *§§63.137(e)(1)(i) and 60.693-2(a)(3)*	☐ Yes	☐ No	
2. Is the floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid)? *§63.137(e)(1)(ii)*	☐ Yes	☐ No	
3. Is a secondary seal installed above the primary seal?	☐ Yes	☐ No	
4. Does the secondary seal meet **all** of the following requirements:			
• is the seal and seal fabric free of holes, tears, an other openings? *§63.137(e)(1)(iv)*	☐ Yes	☐ No	
• is the seal continuously attached along the edge of the floating deck? *§63.137(e)(1)(iii)*	☐ Yes	☐ No	
• does the seal completely cover the space between the edge of the floating roof and the oil-water separator wall, except as allowed by both of the following: *§§63.137(e)(1)(vi) and 60.693-2(a)(1)(ii)*			
‣ 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?	☐ Yes	☐ No	
‣ the maximum gap width between the separator wall and the seal does not exceed 1.3 centimeters at any point?	☐ Yes	☐ No	
5. Does the primary seal meet all of the following requirements:			
• is the primary seal a liquid-mounted seal or a mechanical shoe seal? *§60.693-2(a)(1)(i)*	☐ Yes	☐ No	
• is the seal fabric, seal envelope, or shoe (if a metallic shoe is used) free of holes, tears, and other openings? *§63.137(e)(1)(iv)*	☐ Yes	☐ No	

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

A.	**Monitoring and Inspection Requirements**			**Comments**
	• if the primary seal is a liquid-mounted seal (e.g., foam or liquid-filled seal), is the seal in contact with the liquid between the wall of the oil-water separator and the floating roof? *§60.693-2(a)(i)(A)*	☐ Yes	☐ No	
	• is the seal continuously attached along the edge of the floating deck? *§63.137(e)(1)(iii)*	☐ Yes	☐ No	
	• does the primary seal form 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 allowed by both of the following: *§§63.137(e)(1)(v) and 60.693-2(a)(1)(i)(B) and (C)*			
	‣ is the total area of gaps between the wall of the oil-water separator and the primary seal are less than 67 square centimeters per meter of the separator wall perimeter?	☐ Yes	☐ No	
	‣ the maximum gap width between the wall of the oil-water separator and the seal is less than 3.8 centimeters at all points?	☐ Yes	☐ No	
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 either of the following: *§60.693-2(a)(4)* • a slotted membrane fabric cover that covers at least 90 percent of the drain opening area, or • a flexible fabric sleeve seal?	☐ Yes	☐ No	
7.	Are all openings in the floating roof equipped with a gasketed cover, seal, or lid, which is kept closed at all times, except during inspections and maintenance? *§60.693-2(a)(2)*	☐ Yes	☐ No	
8.	Are gaskets, joints, lids, covers, and doors in good condition (i.e., not cracked, gapped, or broken)? *§63.137(e)(1)(vii)*	☐ Yes	☐ No	
9.	Are all openings kept closed except when in use (e.g., an opening is in use during sampling, removal of material, inspection, maintenance, or repair)? *§63.137(b)(1)(ii) and (d)*	☐ Yes	☐ No	
B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you keep all records for at least 5 years (Option O1 or O2)? *§63.1367(a)*	☐ Yes	☐ No	
2.	If you use a floating roof (Option 2), do records indicate all of the following:			
	• that seal gap measurements are performed annually for the secondary seal? *§§63.137(c)(2) and 63.147(b)(1)*	☐ Yes	☐ No	
	• that seal gap measurements are performed every 5 years for the primary seal? *§§63.137(e)(1) and 63.147(b)(1)*	☐ Yes		

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

B.	**Recordkeeping and Reporting Requirements**			**Comments**
	• that all of the following information is recorded for each seal gap measurement: *§63.147(b)(3)*	☐ Yes	☐ No	
	‣ date of measurement?	☐ Yes	☐ No	
	‣ raw data obtained?	☐ Yes	☐ No	
	‣ calculations performed?		☐ No	
3.	Do you record the occurrence of each semiannual visual inspection of oil-water separators for improper work practices (Option O1 or O2)? *§§63.137(d) and 63.147(b)(1)*	☐ Yes	☐ No	
4.	Do you record the occurrence of each semiannual visual inspection of oil-water separators for control equipment failures (Option O1 or O2)? *§§63.137(e) and 63.147(b)(1)*	☐ Yes	☐ No	
5.	For each inspection during which a control equipment failure was identified, do you record and report all of the following in your next periodic report (Option O1 or O2): *§§63.137(e) and 63.146(c)*			
	• date of the inspection	☐ Yes	☐ No	
	• identification of the oil-water separator having the failure?	☐ Yes	☐ No	
	• description of the failure?	☐ Yes	☐ No	
	• description of the nature of the repair?	☐ Yes	☐ No	
	• date the repair was made?	☐ Yes	☐ No	
6.	When your seal gap measurements indicate a failure, do you include all of the following in your next periodic report (Option O2):			
	• date of measurement?	☐ Yes	☐ No	
	• raw data obtained?	☐ Yes	☐ No	
	• calculations performed?	☐ Yes	☐ No	

[a] The emission suppression compliance options for oil-water separators are described in the section "What are my emission suppression compliance options?" beginning on page 5-4.

Checklist 6: Requirements for covers, fixed roofs, and enclosures that are used in emission suppression compliance options

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring and Inspection Requirements**			**Comments**
	Note: Inspections for leaks are not required if you maintain your cover, fixed roof, or enclosure (and the closed-vent system that is connected to it) under negative pressure.			
1.	Do you conduct semiannual sensory-based inspections of each cover, fixed roof, and enclosure for leaks? *§63.1366(h)(2)(iii)(B)*	☐ Yes	☐ No	
2.	After repairing a leak, do you use Method 21 to confirm that the leak is successfully repaired or that it is nonrepairable? *§63.1367(f)(4)(iii)*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	
2.	Do your records identify all parts of the covers, fixed roofs, and enclosures that you designated as unsafe to inspect or difficult to inspect, and do the records explain why you assigned the designation? *§63.1367(f)(1) and (2)*	☐ Yes	☐ No	
3.	Do you have a written plan for inspecting the unsafe-to-inspect parts of the covers, fixed roofs, and enclosures as frequently as practicable? *§§63.1366(h)(6)(ii) and 63.1367(f)(1)* *Note: The inspections do not need to be more frequent than once per year.*	☐ Yes	☐ No	
4.	Do you have a written plan for inspecting the difficult-to-inspect parts of covers, fixed roofs, and enclosures at least once every 5 years? *§§63.1366(h)(7)(ii) and 63.1367(f)(2)*	☐ Yes	☐ No	
5.	For each inspection during which no leaks are detected, do you records all of the following: *§63.1367(f)(6)*			
	• date of the inspection?	☐ Yes	☐ No	
	• a statement that no leaks were detected?	☐ Yes	☐ No	
6.	For each inspection during which a leak is detected, do you have the following records: *§63.1367(f)(4)*			
	• identification of the leaking equipment?	☐ Yes	☐ No	

Checklist 6: ***(cont'd)***
Requirements for covers, fixed roofs, and enclosures

B.	Recordkeeping and Reporting Requirements			Comments
	• the date the leak was detected?	☐ Yes	☐ No	
	• the date of the first attempt to repair the leak?	☐ Yes	☐ No	
	Note: The first attempt to repair the leak must be no later than 5 calendar days after the leak is detected. §63.1366(h)(4)(i)			
	• maximum instrument reading measured by Method 21 after the leak is repaired or determined to be nonrepairable?	☐ Yes	☐ No	
	• all of the following if the leak is not repaired within 15 calendar days after the leak was discovered:			
	▸ reason for the delay?	☐ Yes	☐ No	
	▸ name, initials, or other form of identification of the person who decided repairs cannot be made without a shutdown?	☐ Yes	☐ No	
	▸ expected date of successful repair?	☐ Yes	☐ No	
	Note: Delay of repair until the next shutdown is allowed if the repair is technically infeasible without a shutdown, or if the emissions from immediate repair would be greater than the fugitive emissions likely from delay.			
	• dates of shutdowns that occur while the equipment is unrepaired?	☐ Yes	☐ No	
	• date of successful repair of the leak?	☐ Yes	☐ No	
7.	Did you submit the records in "6" of all inspections during which a leak is detected in your next periodic report? *§63.1368(g)(2)(iii) and (xi)*	☐ Yes	☐ No	

Checklist 7: Requirements for steam strippers (treatment compliance options T1, T2, T3A, T3B, and T3E)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring and Inspection Requirements**			**Comments**
1.	If you have a design steam stripper (Option T2), does it meet all of the following requirements: *§63.138(d)*			
	• is the minimum active column height at least 5 meters?	☐ Yes	☐ No	
	• does the countercurrent flow configuration have at least 10 actual trays?	☐ Yes	☐ No	
	• is the steam flow rate at least 0.04 kilograms of steam per liter of wastewater feed?	☐ Yes	☐ No	
	• is the temperature of the wastewater feed to the steam stripper (or the column temperature) at least 95°C?	☐ Yes	☐ No	
	• is the wastewater liquid loading no greater than 67,100 liters per hour per square meter?	☐ Yes	☐ No	
	• does it operate at nominal atmospheric pressure?	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements (Options T1, T2, T3A, T3B, or T3E)**			**Comments**
1.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	
2.	Do you keep records of the continuous monitoring data for all of the following parameters: *§63.147(b)(5)*			
	• steam flow rate?	☐ Yes	☐ No	
	• wastewater feed mass flow rate?	☐ Yes	☐ No	
	• either wastewater feed temperature or column temperature?	☐ Yes	☐ No	
	Note: You do not have to monitor these parameters if you request and receive approval to monitor alternative parameters.			
3.	Do you keep records of the daily averages of each of the parameters in "2"? *§63.147(d)*	☐ Yes	☐ No	

Checklist 7: ***(cont'd)***
Requirements for steam strippers

B.	**Recordkeeping and Reporting Requirements (Options T1, T2, T3A, T3B, or T3E)**			**Comments**
4.	For each inspection during which a control equipment failure was identified, do you record and report the following in the Periodic report: *§63.146(c)*			
	• date of the inspection	☐ Yes	☐ No	
	• identification of the treatment unit?	☐ Yes	☐ No	
	• description of the failure?	☐ Yes	☐ No	
	• description of the nature of the repair?	☐ Yes	☐ No	
	• date the repair was made?	☐ Yes	☐ No	
5.	Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are ≥1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data (including daily averages) for all operating days or blocks when the average of a monitored parameter is outside the range specified in your NOCSR or operating permit?	☐ Yes	☐ No	
	• identification of all operating days or blocks when insufficient monitoring data are collected?	☐ Yes	☐ No	
	• operating logs and operating scenarios?	☐ Yes	☐ No	

[a] The treatment compliance options for steam strippers are described in the section "What treatment compliance options do I have for my wastewater streams?" beginning on page 5-10.

Checklist 8: Requirements for treatment units other than steam strippers (treatment compliance options T1 and all versions of T3)[a]

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column. All questions apply to option T1 and all versions of option T3, unless noted.

A.	**Monitoring and Inspection Requirements**			**Comments**
1.	Are monitoring devices present to conduct monitoring that was approved by the Administrator or permitting authority? *§63.143(c) and (d)*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	
2.	Do you have records of monitoring approved by the Administrator or permitting authority? *§63.147(b)(4)*	☐ Yes	☐ No	
3.	If any of the parameters are monitored continuously, do you keep records of the daily averages? *§63.147(d)*	☐ Yes	☐ No	
4.	If you use a biological treatment unit and you comply with Option T3G or T3H), do you have records of the F_{bio} determination?	☐ Yes	☐ No	
5.	Do you submit **all** of the following in your Periodic Reports if exceedances or excursions are $\geq$1 percent of the total operating time during the reporting period: *§63.1368(g)(2)*			
	• all monitoring data (including daily averages) for all operating days or blocks when the average of a monitored parameter is outside the range specified in your NOCSR or operating permit?	☐ Yes	☐ No	
	• identification of all operating days or blocks when insufficient monitoring data are collected?	☐ Yes	☐ No	
	• operating logs and operating scenarios?	☐ Yes	☐ No	

[a] The treatment compliance options for all treatment units are described in the section "What treatment compliance options do I have for my wastewater streams?" beginning on page 5-10.

Checklist 9: Requirements for heat exchange systems (compliance options HE1 and HE2)[a]

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

Note: Use section A of this checklist to determine if your heat exchange system is subject to control requirements. If it is, then a "yes" response to a question in section B of this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A. Applicability			Comments
1. Does your heat exchange system meet any of the following conditions? *§63.104(a)*			
• Is the minimum pressure on the cooling water side of the heat exchange system at least 35 kPa greater than the maximum pressure on the process side?	☐ Yes	☐ No	
• Do you use an intervening fluid between the process and the cooling water where the intervening fluid meets both of the following: ‣ contains less than 5 percent by weight of HAP listed in Table 4 to subpart F of 40 CFR part 63, and ‣ is **not** sent through a cooling tower or discharged?	☐ Yes	☐ No	
• Do you have a once-through heat exchange system that is subject to an NPDES permit with an allowable discharge limit that is either 1 ppm or less above the influent concentration or 10 percent or less above the influent concentration?	☐ Yes	☐ No	
• Do you have a once-through heat exchange system that is subject to an NPDES permit that includes **all** of the following: ‣ requires monitoring of a parameter(s) or condition(s) to detect a leak of process fluids into cooling water, and ‣ specifies or includes the normal range of the parameter(s) or condition(s), and ‣ requires monitoring for the parameter(s) no less frequently than monthly for the first 6 months and quarterly thereafter, and ‣ requires you to report and correct leaks to the cooling water when the parameter or condition is outside the normal range?	☐ Yes	☐ No	
• Do you have a recirculating heat exchange system that is used to cool process fluids that contain less than 5 percent by weight of total HAP listed in Table 4 to subpart F of part 63?	☐ Yes	☐ No	

Checklist 9: ***(cont'd)***
Requirements for heat exchange systems

A.	**Applicability**			**Comments**
	• Do you have a once-through heat exchange system that is used to cool process fluids that contain less than 5 percent by weight of total HAP listed in Table 9 to subpart G of part 63? *Note: If you answer "yes" to any of the questions in this section, do not continue; your heat exchange system is exempt from control requirements. If you answer "no" to all of the questions in this section, proceed to the questions in section B.*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	
2.	If you comply with option HE2, do you have a monitoring plan that includes all of the following: *§63.104(c)(1)*			
	• description of the parameter(s) or condition(s) to be monitored?	☐ Yes	☐ No	
	• explanation of how the selected parameter(s) or condition(s) will reliably indicate a leak?	☐ Yes	☐ No	
	• the parameter level(s) or condition(s) that constitute a leak, including supporting data and calculations?	☐ Yes	☐ No	
	• your monitoring frequency?	☐ Yes	☐ No	
	• the records that you will maintain?	☐ Yes	☐ No	
3.	When you detect a leak, do you have all of the following records: *§63.104(f)(1)*			
	• identification of the leak?	☐ Yes	☐ No	
	• date when the leak was detected?	☐ Yes	☐ No	
	• date(s) of efforts to repair the leak?	☐ Yes	☐ No	
	• the method or procedure used to confirm repair of the leak?	☐ Yes	☐ No	
	• date the repair was confirmed? *Note: confirmation of repair is not applicable while delay of repair provisions are in effect.*	☐ Yes	☐ No	

Checklist 9: ***(cont'd)***
Requirements for heat exchange systems

B.	**Recordkeeping and Reporting Requirements**			**Comments**
4.	If you have delayed repair of a leak, do you have documentation for either of the following, along with a schedule for completing the repair as soon as practical: *§63.104(e)(2)* • the basis of a determination that a shutdown for repair would cause greater emissions than the emissions likely to result from delaying repair, or • evidence that the necessary parts or personnel were not available to make the repair? *Note: Documentation is not necessary if you isolate the equipment from the process, or if you have a planned shutdown scheduled within the next 2 months after you determine that a delay of repair is necessary. §63.104(e) introductory text and (e)(1)*	☐ Yes	☐ No	
5.	Do you submit **all** of the following in your Periodic Reports if you delay repair of a leaking heat exchange system: *§63.104(f)(2)*			
	• Identification of the leak?	☐ Yes	☐ No	
	• date the leak was detected?	☐ Yes	☐ No	
	• whether or not the leak has been repaired?	☐ Yes	☐ No	
	• reason(s) for any delay of repair?	☐ Yes	☐ No	
	• documentation of emissions estimates, if repair is delayed for either of the reasons listed in question B.4?	☐ Yes	☐ No	
	• either the expected date of repair (if the leak has not yet been repaired) or the date the leak was successfully repaired?	☐ Yes	☐ No	

[a] The compliance options for heat exchange systems are described in the section "What are my compliance options for heat exchange systems?" beginning on page 5-30.

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Chapter 6 - Complying with requirements for equipment leaks

What equipment leaks are regulated by Subpart MMM?

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

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

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

If you have equipment subject to both Subpart MMM and other air regulations under 40 CFR parts 60 or 61, you are 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 that is subject to 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: [§63.1363(a)(10)]

- after the leak has been repaired if the equipment is not a valve in light liquid or gas/vapor service

- when no leak is detected by follow-up monitoring on a valve in light liquid or gas/vapor service

---

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

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 do not contain process fluids
- utilities and other nonprocess lines that do not 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 **five** 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 and transport emissions through a closed-vent system to a control device [§63.1363(b)(3)(ii), §63.172, and §63.179]

Capture equipment leak emissions and transport them through a closed-vent system to a control device. This option applies to an entire process unit that is enclosed, and emissions are transported through a closed-vent system to a control device. It also applies to pumps, agitators, compressors, pressure relief devices, and sampling connection systems that are equipped with a closed-vent system to transport leaking liquid, emissions, or samples to a control device (or a process).

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

Pressure test the process to demonstrate compliance for equipment for which periodic monitoring would be required under option 1. Also comply with the option 1 requirements for compressors, pressure relief devices in gas/vapor service, open-ended valves and lines, and sampling connection systems.

Option 4: Alternative monitoring for batch processes [§63.1363(b)(3)(iv), §63.178(c)]

Implement an LDAR program as in option 1, except the monitoring frequency may be reduced for some batch components that operate less than 75 percent of the time.

Option 5: Alternative means of emission limitation [§63.1363(b)(2), §63.177]

Apply for permission to use an alternative equipment, design, or operational requirement or work practice standard.

The requirements and exceptions for all of the options as applied to different types of equipment are summarized in **Table 6-1** (page 6-4). 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 are using. The LDAR program is broken down into the following **eleven** categories:

- pumps in light liquid service

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

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

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

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

(Note: Vapor pressures may be determined by the methods described in 40 CFR 60.485(e)(1).)

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

For the following equipment...	Your equipment leak requirements are...	Except for...[a]	According to this section of the rule...
Pumps in light liquid service and **agitator**s in gas/vapor service and in light liquid service (Option 1)	• quarterly monitoring for leaks (or monthly if calculated percent leaking pumps exceeds specified level) • weekly visual inspections • repair of leaks	• unsafe to monitor or inaccessible equipment • pumps/agitators with dual mechanical seal system with barrier fluid • pumps/agitators with no externally actuated shaft • pumps/agitators with closed-vent systems and control devices • pumps/agitators at unmanned sites	§63.1363(c)
Open-ended valves or **lines** (Option 1)	seal valves or lines with a cap, blind flange, plug, or a second valve	• valves/lines designed to open automatically in emergency • valves/lines containing materials which would autocatalytically polymerize • valves/lines that would be hazardous if capped or equipped with a double block and bleed system	§63.1363(d)
Valves in gas/vapor service and light liquid service (Option 1)	• initial monitoring for leaks • repeat monitoring based on calculation of percent leaking valves • repair of leaks	• unsafe and difficult to monitor valves • inaccessible valves	§63.1363(e)
Compressors (Option 1)	• equip compressors with a seal system that includes barrier fluid system • repair of leaks	• compressors with closed-vent systems and control devices • compressors with leak detection instrument reading of <500 ppm	§63.164
Pressure relief devices in gas/vapor service (Option 1)	leak detection instrument reading of <500 ppm (except during pressure releases)	• pressure relief devices with closed-vent systems and control devices • pressure relief devices with upstream rupture disks	§63.165
Sampling connection systems (Option 1)	a closed-purge, closed-loop, or closed-vent system	in-situ sampling systems and sampling systems without purge	§63.166

TABLE 6-1. (cont'd)

For the following equipment...	Your equipment leak requirements are...	Except for...[a]	According to this section of the rule...
Pumps, valves, connectors, and **agitators** in heavy liquid service; **instrumentation systems**; and **pressure relief devices** in liquid service (Option 1)	• monitor equipment when sensory detection methods provide evidence of potential leaks • repair of leaks	potential leaks that are repaired before monitoring	§63.169
Connectors in gas/vapor service and in light liquid service (Option 1)	• initial monitoring for leaks • repeat monitoring based on calculation of percent leaking connectors • repair of leaks	• connectors that have been opened or have a broken seal • screwed connectors with a small inside diameter • ceramic or ceramic-lined connectors • unsafe and difficult to monitor connectors • inaccessible connectors • credits for removed connectors	§63.174 with changes described in §63.1363(b)(3)(iii)
Enclosed equipment with closed-vent systems and **control devices** (Option 2)	• percent reduction, outlet concentration, or equipment operating requirements • monitoring for use of bypass lines • inspections • repair of leaks	control devices subject to monitoring, reporting, and recordkeeping requirements in 40 CFR part 264, subpart BB, **or** in 40 CFR part 265, subpart BB	§63.172 with changes described in §63.1363(b)(3)(ii)
Pressure testing (Option 3)	• pressure test each time equipment is reconfigured • pressure test at least annually if equipment is not reconfigured • repair leaks and retest	pressure testing is not required for routine seal breaks that are unrelated to reconfiguration of the equipment	§63.178(b) and (d) with changes described in §63.1363(b)(3)(iv)
Monitoring for batch processes (Option 4)	• apply equipment standards and monitor as required by option 1 • monitor after reconfiguration • repair leaks	monitoring frequency may be reduced for valves and agitators that are not operated full time	§63.178(c) and (d)

[a] Note that equipment exempted from the general requirements often still must meet specified design criteria, must be monitored less frequently, or must meet other requirements. Details are presented later in this chapter.

- agitators in gas/vapor service and light liquid service

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

- 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

> **Definition.** *In heavy liquid service* means that the piece of equipment in organic HAP service is not in gas/vapor or light liquid service.

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

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

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

- by using Method 21 as specified in §63.1363(b)(3)(v) and §63.180 of the HON
- by visual or other sensory means of detection

The frequency of Method 21 monitoring for **pumps** in light liquid service, **valves** in gas vapor service or light liquid service, and **connectors** in gas/vapor service or light liquid service depends on how many leaked in the preceding monitoring period(s). You have the option of how to group processes for use in calculating the percentage of these components that leak. You have even more grouping possibilities for valves because you may establish groups using subsets of the valves within groups of

> **Definition**. A *group of processes* means all of the equipment associated with processes in a building, processing area, or facility-wide. A group of processes may consist of a single process.

processes, as long as less than 2 percent of the valves in the overall group of processes from which the subsets were created are leaking (see requirements for subgrouping in "What LDAR requirements apply to valves in gas/vapor or light liquid service (Option 1)?" for more information).

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.

What are the LDAR requirements for <u>Pumps</u> in Light Liquid Service and <u>Agitators</u> 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, pumps and agitators with specific design or operational features are exempt from some of these requirements. The requirements and exemptions are detailed below.

Monitoring for leaks

You must monitor for leaks at least once 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)]

- $\geq$10,000 ppm for agitators
- $\geq$2,000 ppm for pumps

You must calculate the percentage of **pumps** that leak using the procedure outlined in §63.1363(c)(4). Prior to the first monitoring period you must decide what groups of processes to develop (see page 6-6 for the definition of "group of processes"). You then calculate the percent leakers in each group of processes for each monitoring period.

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

You must monitor all of the pumps in the group of processes **monthly** if (based on a 1-year rolling average) **either** of the following apply:

- 10 percent or more of the pumps in the group of processes leak
- three or more pumps in the group of processes leak (if the group of processes has less than 30 pumps)

You may return to quarterly monitoring after the 1-year rolling average value drops below 10 percent (or less than 3 pumps leak).

All pumps in organic HAP service must be included in the calculation of percent leaking pumps, except for the following:

- pumps designed with no externally actuated shaft penetrating the pump housing [§63.1363(c)(6)]
- all pumps in a group of processes if more than 90 percent of the pumps in the 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
- pumps that you designate as difficult to monitor
- pumps that are in compliance with option 2

  Note: Pumps that are excluded from the percent leaking calculation also never have to be monitored more frequently than quarterly.

Visual inspections

Each pump and agitator must be checked weekly by visual inspection for signs of liquids dripping from the pump or agitator seal. If you notice signs of liquids dripping from the seal, you must do either of the following: [§63.1363(c)(2)(iii)]

- stop the liquid from dripping
- monitor the pump or agitator using a leak detection instrument (follow the procedure specified in §63.180(b) to determine if you have a leak; you have a leak if the instrument reading is $\geq$10,000 ppm for agitators or $\geq$2,000 ppm for pumps)

Repair of leaks

You must repair leaks as soon as possible after they are detected, unless a delay of repair is allowed. See "What are my leak repair requirements?" for more information.

Exceptions

There are several exemptions to the requirements for implementing an LDAR program 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 difficult to monitor and agitators that are unsafe or difficult to monitor -

- Equipment that is **unsafe or difficult to monitor** is subject to special monitoring requirements instead of the quarterly or monthly monitoring described above, and pumps that are difficult to monitor also are excluded from the calculation of the percent leaking pumps. See “What if equipment is unsafe or difficult to monitor?” (page 6-28) 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 quarterly or monthly monitoring provisions in §63.1363(c)(2) provided that **all** of the following are performed: [§63.1363(c)(5)]
  - your dual mechanical seals meet **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** is not 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, you must either stop the drips or monitor the seal with a leak detection instrument to determine if there is a leak of organic HAP in the barrier fluid. You have a leak if the instrument reads $\geq$10,000 ppm for agitators or $\geq$2,000 ppm for pumps, and you must repair the leak as described in “What are my leak repair requirements?” (page 6-26).
  - you have determined the criteria that you will 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 my leak repair requirements?" (page 6-26).

Note: Pumps with dual mechanical seals also must be included in the percent leaking calculation

- Any pump or agitator designed with **no externally actuated shaft** penetrating the pump/agitator housing is exempt from all of the monitoring, visual inspection, repair, and calculation of percent leaking pumps provisions. [§63.1363(c)(6)]
- Pumps and agitators with a **closed-vent system** that captures and transports leaking material from the seals to a process or control device are complying with option 2 and are exempt from the monitoring, visual inspection, repair, and calculation of percent leaking pumps provisions under option 1. [§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 <u>open-ended valves or lines</u> (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. [§63.1363(d)(3)]

Exemptions

You **do not** 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 is designed to open automatically as part of an emergency shutdown system in the event of a process upset

What LDAR requirements apply to <u>valves</u> 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

For more information, see "What if equipment is unsafe or difficult to monitor?"

Step 3: Perform initial monitoring:

- monitor all valves (except those identified in Step 2) using a leak detection instrument within 1 year after the compliance date (e.g., by 12/23/04). Use Method 21 as specified in §63.180(b) of subpart H. [§63.1363(e)(2) and (e)(3)(i)]

Step 4: Repair all leaks

- if you find a leaky valve, you must repair it as soon as possible, unless a delay of repair is allowed. See "What are my leak repair requirements?" (page 6-26) for more information.

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

- re-monitor the valve within 3 months of repair, but you do not 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)]

  Note: Days when a valve is not in organic HAP service are not included in the 3-month period.

Step 5: Calculate your percentage of leaking valves

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

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

  - create a 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 (see page 6-13 for instructions on how to create a subgroup)

Note: To create or revise groups of processes 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), except you must include the nonrepairable valve as a leaking valve in the calculation of percent leakers for the first monitoring period after you identify it as leaking. [§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...[a]	Then you must monitor at least once every...[b]	According to §63.1363(e)(6)(iii) and this section of the rule...
≥250	≥2 percent	month	§63.1363(e)(4)(i)
	<2 percent	3 months	§63.1363(e)(4)(ii)
	<1 percent	6 months	§63.1363(e)(4)(iii)
	<0.5 percent	12 months	§63.1363(e)(4)(iv)
	<0.25 percent	2 years	§63.1363(e)(4)(v)
<250	no determination required	3 months	§63.1363(e)(9)
	<1 percent	6 months	§63.1363(e)(4)(iii), (e)(4)(iv), (e)(4)(v), and (e)(9)
	<0.5 percent	12 months	
	<0.25 percent	2 years	

[a] Percentages are averaged from the data collected during the previous two monitoring periods if the group or subgroup was monitored every year or every 2 years, and percentages are averaged from the previous three monitoring periods if the group or subgroup was monitored every 1 month, 3 months, or 6 months. [§63.1363(e)(6)(iii)]

[b] All valves that you find to be leaking must be repaired and remonitored within 3 months as specified in step 4. [§63.1363(e)(7)]

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

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

Note: Additional recordkeeping and reporting is required for valves in subgroups [§63.1363(e)(5)(iv) and (v)]. See Table 6-2 in the section "What records must I keep for my equipment leaks?" (page 6-31) and the section "What reports must I submit" (page 6-37) for more information.

What LDAR requirements apply to <u>compressors</u> (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 is operated with the barrier fluid pressure greater than the compressor stuffing box pressure

- ▸ it is equipped with a barrier fluid system degassing reservoir that is routed to a process or connected by a closed-vent system to a control device
- ▸ it is 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** as soon as possible, unless a delay of repair is allowed. See "What are my leak repair requirements?" (page 6-26) for more information.

Exceptions

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

- comply with option 2 by equipping 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 <u>pressure relief devices</u> 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 as follows: [§63.165(b)]

- return the pressure relief device to normal operating condition as soon as possible, but not more than 5 days after the pressure release, unless a delay is allowed. See "What are my leak repair requirements?" (page 6-26) for more information.

- monitor the pressure relief device within 5 days after the pressure release (and the pressure relief device has been returned to organic HAP service) using a leak detection instrument
- the instrument reading must be less than 500 ppm above background

Note: To measure leaks, use Method 21 and the procedures specified in §63.180(c) of subpart H. You may either adjust the instrument reading to account for background levels, or you may directly compare the reading to the 500 ppm limit.

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 by capturing emissions from releases and transporting them through a closed-vent system to a process or control device. [§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. Each of your sampling connection systems must have a closed-purge, closed-loop, or closed-vent system that does **one** of the following: [§63.166(b)]:

You do not have to collect or capture gases displaced during filling of the sample containers. [§63.166(a)].

- returns purged process fluid directly to the process line
- collects and recycles purged process fluid to a process
- captures and transports purged process fluid to a control device
- collects, stores, and transports purged process fluid to a waste management unit, TSDF, or permitted waste management facility

Note: Your waste management unit must meet the control requirements specified in subpart G for Group 1 wastewater (see Chapter 5 for details) if the purged process fluid contains any of the HAP listed in Table 9 to subpart G.

Exceptions

The following sampling systems are exempt from the LDAR requirements for sampling connection systems: [§63.166(c)]

- in-situ sampling systems
- sampling systems without purges

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

Both types of requirements are detailed below.

Monitoring for leaks

If you see, hear, notice an odor, or otherwise detect a potential leak, then you must do **either** of the following:

- consider the equipment to be leaking
- monitor for leaks within 5 days of noticing the potential leak using a leak detection instrument. Follow Method 21 and the procedures described in §63.180(b).

The following table summarizes instrument readings that are 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, unless a delay of repair is allowed. See "What are my leak repair requirements?" (page 6-26) for additional details.

Repair of potential leaks means any of the following: [§63.169(c)(3)]

- 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 <u>connectors</u> 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 connectors

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)]:

- unsafe to monitor
- difficult to monitor
- inaccessible
- ceramic or ceramic-lined

For more information, see "What if equipment is unsafe or difficult to monitor?" (page 6-28)

Step 3: Perform initial monitoring

Monitor all connectors (except those designated in Step 2) [§63.174(b)(1) and (2)]:

- by December 23, 2004 for existing sources
- within 12 months after initial startup or by December 23, 2004, whichever is later, for new sources

Step 4: Repair the leak

Repair leaks as soon as possible, unless a delay of repair is allowed [§63.174(d)]. See "What are my leak repair requirements?" (page 6-26) for more information.

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). See page 6-6 for a definition of "group of processes".

Step 6: Continuous monitoring for leaks

After the first year of monitoring, determine your required monitoring frequency for each group of processes using the flowchart in figure 6-1. [§63.1363(b)(3)(iii)(C) through (G)]

Step 7: Repair leaks

Repair leaks as soon as possible as specified in step 4.

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

- connectors that have been opened
- screwed connectors
- eliminated 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)(1)]:

- 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 is reported in your periodic report. 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 for connectors that have been opened: [§63.174(c)(2)]

- Comply with the requirements for connectors in heavy liquid service in §63.169 of the subpart H (i.e., if you detect evidence of a leak by sight, sound, odor, or other means, then either repair the connector or monitor to determine if repair is needed).

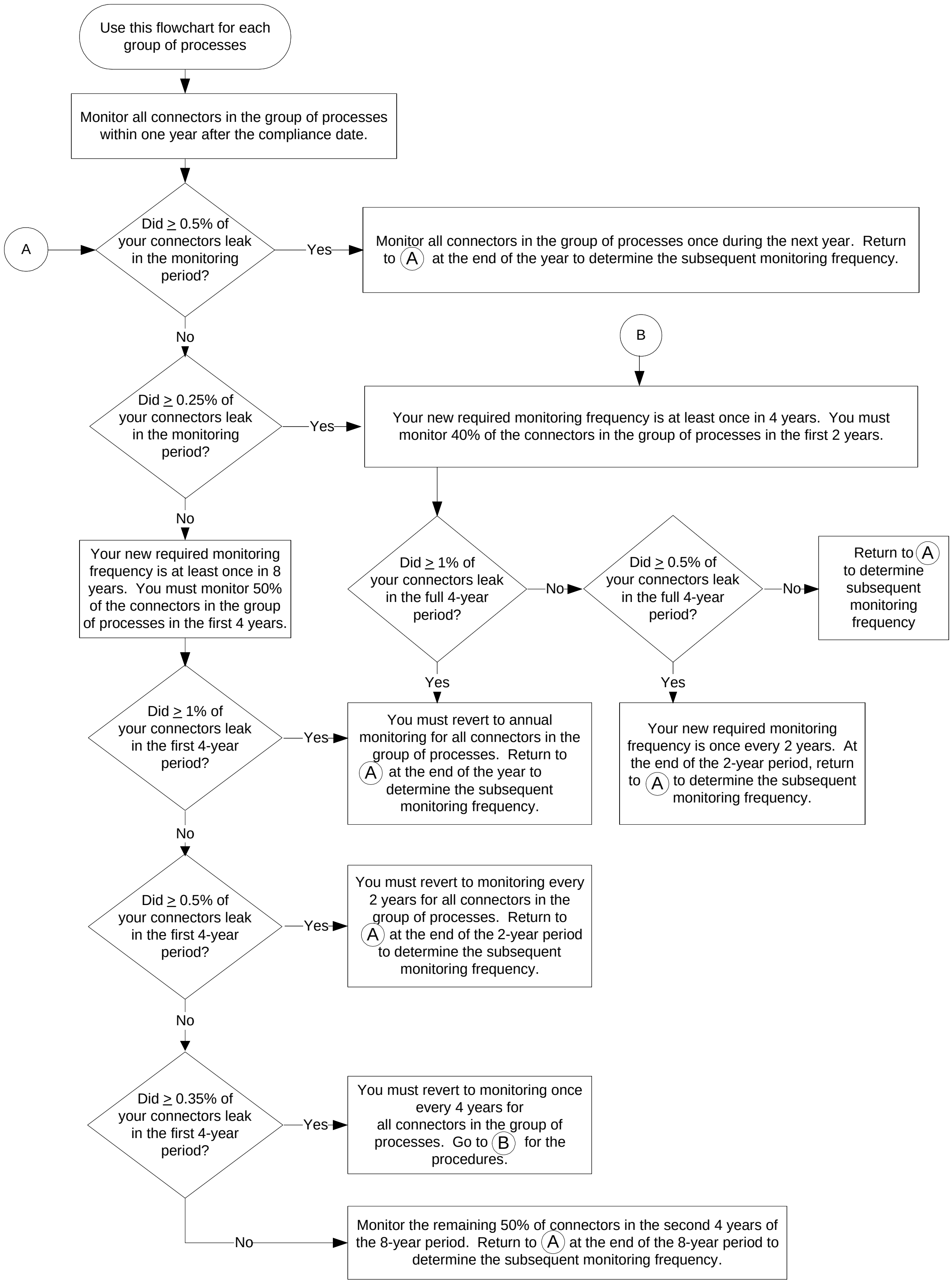

Figure 6-1. Flowchart of monitoring frequencies for connectors.

- 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 my 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 Method 21 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 of closed-vent systems and control devices
- inspections of closed-vent systems
- repair of leaks in closed-vent systems
- monitoring of control devices
- monitoring of bypass lines

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

Operating requirements

Closed-vent systems and control devices must be operating whenever organic HAP emissions are being vented [§63.172(m)]. The table below summarizes the standards for control devices (these requirements are not applicable if you transport emissions from equipment to a process):

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

[a] The 20 ppmv standard is not applicable if you are using option 2 for an enclosed process unit.

Inspections for closed-vent systems

You must conduct both initial and annual inspections of closed-vent systems. [§63.172(f) and (g)]

If your closed-vent system is made of hard-piping, you must perform an initial inspection using a leak detection instrument, and you must perform annual sensory inspections to check for indications of leaks based on sight, sound, or odor.

§63.180(b) of subpart H specifies how you must conduct inspections using a leak detection instrument. You have a leak if the instrument reading is >500 ppm above background.

If your closed-vent system is made of duct work, you must use a leak detection instrument in both your initial and annual inspections [§63.172(f) and (g)].

Note: You do not have to inspect parts of a closed-vent system that are unsafe to monitor or difficult to monitor. See "What if equipment is unsafe or difficult to monitor?" for more information. [§63.1363(b)(3)(ii)(A)]

You also do not have to monitor your closed-vent system if you operate and maintain it at negative pressure. However, you must install at least one 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)]

Repair leaks

All leaks in your closed-vent system that you detect by sensory inspections or by using a leak detection instrument must be repaired as soon as possible, unless a delay of repair is allowed. See "What are my leak repair requirements?" (page 6-26) for more information.

Monitoring control devices

You must monitor your control device to ensure that it is operated and maintained as designed. You must select the parameter or parameters to monitor and keep a record that explains why each parameter was selected for monitoring. See "Records for closed-vent systems (Option 2)" in "What records must I keep for my equipment leaks?" (page 6-29) for more information. [§§63.172(e) and 63.1363(g)(7)(i)(D)]

Note: This requirement does not apply if you transport emissions to a process instead of a control device.

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)].*

Monitoring 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. See "records for closed-vent systems (Option 2)" in "What records must I keep for my equipment leaks?" for more information
- 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

Note: You do not have to comply with the bypass monitoring requirements for low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves that are needed for safety purposes. [§63.172(j)(3)]

What are my compliance requirements for pressure testing (Option 3)?

If you comply with the requirements for pressure testing, you are **exempt** from the option 1 monitoring provisions for **all** of the following: [§§63.1363(b)(3)(iv) and 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

You must comply with the **Option 1 requirements** for all of the following:

- sampling connection systems
- open-ended valves or lines
- compressors
- pressure relief devices in gas/vapor service

You must also comply with the **Option 2 requirements** if closed-vent systems are used to capture and transport leaking or purged material to a process or control device from any of the following equipment:

- pumps
- agitators
- compressors
- pressure relief devices
- sampling connection systems

For 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 **is not** required for routine seal breaks, such as changing hoses or filters, that are unrelated to reconfiguration. You must pressure test at least once per year. [§63.178(b)(1)]

If you pressure test, process equipment must be tested using ***either*** *of the procedures specified in:*

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

You have a leak if: [§63.178(b)(3)]

For pressure or vacuum tests...	For pressure tests using a liquid...
The pressure changes at a rate greater than 6.9 kilopascals (1 psig) in 1 hour **or** if there is visible, audible, or olfactory evidence of fluid loss	there are indications of liquids dripping **or** if there is 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 my leak repair requirements?" (page 6-26) for more information.

What are my compliance requirements for alternative monitoring of batch processes (Option 4)?

If you elect to comply with the alternative monitoring for batch equipment, you must do all of the following:

- comply with all of the compliance requirements for option 1 except:
  - less frequent monitoring may be possible for both of the following: [§63.178(c)(1)]
    - ❖ valves in gas/vapor or light liquid service
    - ❖ agitators in gas/vapor or light liquid service

    Note: Pumps must be monitored quarterly or monthly as specified in option 1, and connectors must be monitored annually or on a less frequent schedule as specified in option 1. [§§63.1363(b)(3)(iv)(B) and 63.178(c)(3)(ii)]
  - different reasons for delay of repair are allowed. See "What are my leak repair requirements?" (page 6-26) for more information
- monitor for equipment leaks within 30 days after process startup when you have reconfigured the equipment for the production of a new product. [§63.178(c)(3)(i)]

  Note: These monitoring results after a process startup can not be used in determining percent leaking equipment.
- perform monitoring that requires use of a leak detection instrument when the batch equipment is in use with **any** of the following [§63.178(c)(2)]:
  - organic HAP
  - an acceptable surrogate volatile organic compound which is not an organic HAP
  - any other detectable gas or vapor

§63.180(b) of subpart H specifies how to monitor for equipment leaks using a leak detection instrument.

You may monitor **batch valves and agitators** at the following reduced frequencies [§63.178(c)(3)(iii)]:

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

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)]

What is required for an alternative standard (Option 5)?

You (and manufacturers of equipment used to control equipment leaks) may apply for permission to use alternative means of emission limitation (e.g., alternative standard) to comply with the equipment leak standards in subpart MMM. 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, including **all** of the following: [§63.177(b), (c), and (e)]:

- you are responsible for collecting and verifying emission performance test data for an alternative limit

  Note: You may offer a unique approach to demonstrate the effectiveness of your alternative [§63.177(d)]

- the Administrator will compare test data or the demonstrated emission reduction for the alternative means of emission limitation to test data or emission reduction for the required PAI equipment leak standards

- if the PAI standard is a work practice, you must commit in writing to work practices that provide the same or better emission reductions than required by Subpart MMM and you must demonstrate the that you are 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

What are my leak repair requirements?

Your leak repair and delay of repair requirements under Options 1, 2, 3, and 4 are detailed below:

Option 1

Rule references for Option 1 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
§63.165(b)(1) for pressure relief devices in gas/vapor service
§63.169(c) and (d) for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service
§63.174(d) and (h)(2) and (3) for connectors in gas/vapor of light liquid service

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 pumps and valves are summarized as follows:

For the following equipment...	First attempts to repair leaks include...	According to...
pumps/agitators in light liquid service or heavy liquid service	• tightening of packing gland nuts • ensuring the seal flush is operating at design pressure and temperature	§§63.1363(c)(3) and 63.169(d)
valves in gas/vapor service, light liquid service, or heavy liquid service	• tightening of bonnet bolts • replacement of bonnet bolts • tightening of packing gland nuts • injection of lubricant into lubricated packing	§§63.1363(e)(8) and 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 does not 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 Option 1 or that meets Option 2. The repair must be completed as soon as possible but not more than 6 months from the time when the leak was detected [§63.171(d)].

- If valve assembly replacement is necessary during a process unit shutdown, but valve assembly supplies are not 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)].

Option 2

Leaks in your closed-vent system must be repaired 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. Leaks must be fully repaired within 15 days after detection. However, you may delay repair of leaks in **closed-vent systems** only if **either** of the following applies: [§63.172(h) and (i)]

- 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

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

Option 3

If you detect a leak during pressure testing, 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 later than 30 days after the second pressure test. [§63.178(b)(4)]

Delaying repair of leaking equipment is allowed under option 3 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

Option 4

If you detect a leak when monitoring a batch process under option 4, you must repair the leak as soon as possible. Generally, repairs must be made no later than 15 days after you detected the leak. However, delaying repair of leaking equipment is allowed under the same conditions as for option 3. [§63.178(c)(4) and (d)]

What if equipment is unsafe or difficult to monitor? (Options 1, 2, and 4)

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 "What compliance options do I have for my equipment leaks?" (page 6-4): [§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**
- **connectors** in gas/vapor service and in light liquid service

Equipment that is unsafe to monitor

You may designate valves, connectors, agitators, and any part of a closed-vent system 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

You may designate valves, agitators, pumps, or any part of a closed-vent system as difficult to monitor if you determine that **either** of the following are true: [§63.1363(f)(3)(i)]

- the equipment can not be monitored without elevating the monitoring personnel more than 2 meters above a support surface
- the equipment is not 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. At a new source, you may designate no more than 3 percent of each type of equipment as difficult to monitor. No limits apply to the percentage of equipment that can be designated as difficult to monitor at an existing source, as long as it meets the applicable criteria. [§63.1363(f)(3)(ii) and (iii)]

Inaccessible connectors and ceramic or ceramic-lined connectors

You may designate a connector as inaccessible if it is **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 as inaccessible if it meets the applicable criteria. At a new source, you may designate no more than **3 percent** of connectors as inaccessible. [§63.1363(f)(4)(ii)]

Inaccessible connectors observed by sight, sound, odor, or other means to be leaking must be repaired as soon as possible. See "What are my leak repair requirements?" (page 6-26) for more information. [§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 and the compliance option you choose: [§63.1363(g)]

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

- 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 pertaining to the division of valves in gas/vapor service and light liquid service into process subgroups

Specific records in all of these categories are identified in Table 6-2 (page 6-31).

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. All records must be kept for at least 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 offsite. You may keep the records on microfilm, a computer, computer disks, magnetic tape disks, or on microfiche. [§§63.1363(g)(1), 63.1367(a)(1), and 63.10(b)(1) of subpart A].

TABLE 6-2. Recordkeeping Requirements of the **Equipment Leak Provisions**

Categories of records under each option are...	Then for the following equipment...	You must keep records of...	According to this section of the rule...
General equipment identification records (All options)	equipment in organic HAP service less than 300 hr/yr	• identification of equipment • information, data, and analysis used to make the determination	§63.1363(g)(9)
	all equipment in organic HAP service for 300 hr/yr or more (except instrumentation systems)	• list of equipment identification numbers (note that the total number of connectors in an area may be listed as a group rather than individually) • updates to the list after equipment changes (make updates within 15 days after then end of monitoring periods for equipment that is monitored periodically)	§63.1363(g)(2)(i)(A)
	equipment in heavy liquid service	• list of identification numbers as specified above • information, data, and analysis used to determine that the equipment is in heavy liquid service	§63.1363(g)(8)
Equipment-specific identification records (Options 1 and 4)	instrumentation systems	list of identification numbers for each instrumentation system (note that you do not need to identify each component in an instrumentation system)	§63.1363(g)(2)(iv)
	compressors	list of identification numbers for compressors that you designate as operating with a leak detection instrument reading of less than 500 ppm above background	§63.1363(g)(2)(ii)(B)
	pressure relief devices in gas/vapor service	• list of identification numbers for pressure relief devices that will be operated with a leak detection instrument reading of less than 500 ppm above background • list of identification numbers for pressure relief devices that have rupture disks	§63.1363(g)(2)(iii)
	valves, connectors, and agitators that you designate as unsafe to monitor; and valves, agitators, and pumps that you designate as difficult to monitor	• list of identification numbers for the equipment that you designate in each of these categories • a copy of your written plan that specifies the frequency for monitoring this equipment	§63.1363(g)(2)(vi)

TABLE 6-2. (cont'd)

Categories of records under each option are...	Then for the following equipment...	You must keep records of...	According to this section of the rule...
	valves that you assign to subgroups	• identification of which valves are assigned initially to each subgroup • identification of valves that are reassigned and when they were reassigned	§63.1363(e)(5)(iv)(A) and (C)
Design criteria records (Options 1 and 4)	dual mechanical seal systems for pumps, agitators, and compressors	• identify design criteria that indicate failure of the seal system and/or barrier fluid system • an explanation of the design criteria • any changes to the design criteria • the reasons for any changes to the design criteria	§63.1363(g)(2)(v)
Monitoring records (Options 1 and 4)	connectors and valves in gas/vapor and light liquid service	your schedules for monitoring these types of equipment with a leak detection instrument	§63.1363(g)(2)(i)(B)
	connectors that you remove from a process so that you can receive credit in the percent leaking calculation	• list of the connectors removed from or added to the process • documentation of the integrity of the weld for all removed connectors	§63.1363(g)(2)(vii)
	all equipment when leaks are detected using a leak detection instrument	• the instrument and the equipment identification number • the operator name, initials, or identification number • date the leak was detected • date of the first attempt to repair the leak • date of successful leak repair • maximum instrument reading measured by the leak detection instrument after the leak is successfully repaired or determined to be non-repairable	§63.1363(g)(4)(i) through (iv)
	all equipment when leak repair is delayed beyond 15 days after the date the leak was detected	• reason for the delay • dates of process shutdowns during the time the equipment is unrepaired	§63.1363(g)(4)(v) and (vi)

TABLE 6-2. (cont'd)

Categories of records under each option are...	Then for the following equipment...	You must keep records of...	According to this section of the rule...
	opened connectors for which you comply with the monitoring specified in §63.174(c)(1)(i)	• identification of the connectors that were disturbed since the last monitoring period • date of follow-up monitoring • monitoring results (i.e., leak detection instrument reading)	§63.1363(g)(4)(vii)
	compressors that you designate as operating with leak detection instrument readings less than 500 ppm above background, and pressure relief devices in gas/vapor service that are returned to operating with instrument readings less than 500 ppm above background after pressure releases	• dates of tests to verify compliance • measured background level during tests • maximum leak detection instrument reading during tests	§63.1363(g)(6)
Visual inspection records (Options 1 and 4)	pumps in light liquid service and agitators in gas/vapor and light liquid service	occurrence and date of inspection	§63.1363(g)(3)

TABLE 6-2. (cont'd)

Categories of records under each option are...	Then for the following equipment...	You must keep records of...	According to this section of the rule...
Closed vent system and control device records[a] (Option 2)	all closed vent systems and control devices	• schematics, design specifications of the control device, and piping and instrumentation diagrams • dates and descriptions of any changes in the design specifications • for a flare: the design (i.e., steam assisted, air assisted, or nonassisted), and the results of the compliance demonstration required by §63.11(b) • 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 • dates and durations when monitoring results show control device is not operating as designed • dates and durations when the control device monitor is not working • dates and durations of startups and shutdowns of control devices • inspections for closed vent systems that do not operate under negative pressure: ‣ if no leaks were detected, record the date of the inspection and state that no leaks were detected ‣ if leaks were detected, by either sensory observations or using a leak detection instrument, record the same information described above for leaks detected using a leak detection instrument under option 1 • results of bypass line monitoring when using a flow indicator: ‣ hourly flow indicator records ‣ times and durations of periods when the flow indicator was not operating ‣ times and durations of periods when flow was diverted from the control device	§§63.1363(g)(7)(i), (ii), (iii), and 63.172(j)(1)

TABLE 6-2. (cont'd)

Categories of records under each option are...	Then for the following equipment...	You must keep records of...	According to this section of the rule...
	each enclosed process	• identification of the process • identification of the HAP handled by the enclosed process • schematic of the process, enclosure, and the closed vent system • description of the system used to create a negative pressure in the enclosure	§63.1363(g)(10)
	pumps, agitators, compressors, and pressure relief devices equipped with closed vent systems	• identification numbers for all such equipment	§63.1363(g)(2)(ii)(A)
	parts of a closed vent system that you designate as unsafe to monitor or difficult to monitor	• a list of the designated parts of the closed vent system • a written plan for monitoring these parts of the closed vent system	§63.1363(g)(2)(vi)
Pressure test records (Option 3)	each process equipment train that is pressure tested	• identification of each product, or product code, produced during the calendar year • dates of each pressure test • the test pressure, and the pressure drop observed during each pressure test • any evidence of fluid loss detected by sight, sound, or odor	§63.1363(g)(5)(i) through (v)
	each process equipment train that does not pass two consecutive pressure tests (i.e., it is not successfully repaired after a leak is detected in the first test)	• date of each pressure test • date of each 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 • the actual date of delivery of the replacement equipment • the date of successful repair	§63.1363(g)(5)(vi)

TABLE 6-2. (cont'd)

Categories of records under each option are...	Then for the following equipment...	You must keep records of...	According to this section of the rule...
Adjusted monitoring frequency records for batch processes (Option 4)	each batch process complying with option 4	• identification of equipment added to the process since the last monitoring period • date of monitoring for equipment added in reconfiguration as specified in §63.178(c)(3)(i) • instrument reading if a leak is detected during monitoring of added equipment, or statement indicating that monitoring was performed if no leak is detected • the portion of time during the year that the equipment for which the monitoring frequency is adjusted is in use in the PAI process (e.g.,records of the time in use for individual pieces of equipment or average time in use for the process unit)	§63.1363(g)(4)(viii) and (g)(5)(ii)

[a] If you convey emissions to a process instead of to a control device, you are subject only to the requirements for closed vent systems.

What reports must I submit?

Chapter 8 describes the notifications and reports that you may need to submit, and the dates when they must be submitted. The information that you will need to submit about equipment leaks is described below. Most of the information that you will need to submit must be included in the following reports:

- notification of compliance status report
- periodic reports

If you decide to subgroup valves, you must also notify the Administrator at least 30 days before the beginning of the next monitoring period. In the notification, you must identify the processes that will be subgrouped and the valves that will be assigned to each subgroup. [§63.1363(e)(5)(v)]

Notification of compliance status report

You must include the following information specific to equipment leaks in your notification of compliance status report:

For each...	You must include the following information...	According to this section of the rule...
group of processes (all options)	• identification of the group of processes • approximate number of each type of equipment (e.g., pumps, valves, etc.) in organic HAP service, excluding those in vacuum service • specific method of compliance	§63.1363(h)(2)(i)
process in compliance with option 3	• identification of products or product codes for PAI's made in the pressure-tested equipment • planned schedule for pressure testing when the equipment is configured for production of PAI's	§63.1363(h)(2)(ii)
enclosed process complying with option 2	• identification of each enclosed process • a description of the system used to create a negative pressure in the enclosure • a description of the control device used to control emissions	§63.1363(h)(2)(iii)

Periodic report

You must include the following information about equipment leaks in your periodic reports:

If you comply with...	Then for...	Include the following information in your periodic reports...	According to the following sections of the rule...
Option 1 or 4	valves in gas/vapor or light liquid service	• total number that leaked • total number monitored • percent that leaked • total number not repaired • number that are nonrepairable • all valve reassignments among subgroups • results of semiannual percent-leakers calculation for groups of processes that have subgroups • a statement indicating the start of monthly monitoring, if applicable	§63.1363(e)(5)(vi), (h)(3)(ii)(A), (h)(3)(ii)(B), and (h)(3)(ii)(K)
	pumps in light liquid service	• total number that leaked • total number monitored • percent that leaked • total number not repaired • a statement that a monthly monitoring program was started, if applicable	§63.1363(h)(3)(ii)(C), (D), and (K)
	agitators in gas/vapor or light liquid service	• total number that leaked • total number monitored • total number not repaired	§63.1363(h)(3)(ii)(C) and (D)
	compressors	• total number that leaked • total number not repaired • results of all monitoring to demonstrate that compressors operate with instrument readings <500 ppm above background	§63.1363(h)(3)(ii)(E), (F), and (J)
	connectors in gas/vapor or light liquid service	• total number that leaked • total number monitored • percent that leaked • number that were not repaired • number that are nonrepairable • statement identifying a change in method of connector monitoring for opened connectors, if applicable	§63.1363(h)(3)(ii)(G), (H), and (L)
	pressure relief device in gas/vapor service	results of all monitoring after a pressure release	§63.1363(h)(3)(ii)(J)
	all types of equipment	• reasons for any delay of repair • explanation of why a process shutdown was technically infeasible	§63.1363(h)(3)(ii)(I)
Option 2	closed vent systems	results of all annual inspections	§63.1363(h)(3)(ii)(J)

If you comply with...	Then for...	Include the following information in your periodic reports...	According to the following sections of the rule...
Option 3	the process	• identification of process equipment train • number of pressure tests conducted • number of pressure tests where either the retest or two consecutive tests failed	§63.1363(h)(3)(iii)(A), (B), and (C)
	all types of equipment	reasons for any delay of repairs	§63.1363(h)(3)(iii)(D)
	closed-vent systems	results of all annual inspections	§63.1363(h)(3)(iii)(E)
All options	all equipment	any change to information that you submitted in your notification of compliance status report	§63.1363(h)(3)(iv)

Checklists for Equipment Leak Inspections

Facility Name: ______________________________
Facility Location: ______________________________
Facility TRI ID #: ______________________________
Inspector: ______________________________ ________
Date: ______________________________ ________

Note: This table explains which inspection checklists you should use for determining compliance with the equipment leak requirements.

Option	For the following equipment...	Then use these checklists:	Starting on pages ...
1	Pumps in light liquid service and agitators in gas/vapor service and in light liquid service	1 and 2	6-41 and 6-43
	Open-ended valves or lines	1 and 3	6-41 and 6-48
	Valves in gas/vapor service and light liquid service	1 and 4	6-41 and 6-49
	Compressors	1 and 5	6-41 and 6-53
	Pressure relief devices in gas/vapor service	1 and 6	6-41 and 6-57
	Sampling connection systems	1 and 7	6-41 and 6-59
	Pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service	1 and 8	6-41 and 6-60
	Connectors in gas/vapor service and in light liquid service	1 and 9	6-41 and 6-63
2	Closed-vent systems and control devices	1 and 10	6-41 and 6-68
3	Equipment in process that is pressure tested	1 and 11	6-41 and 6-73
4	Equipment in process that complies with alternative monitoring for batch processes	1 and 12 (and all of 2 through 9 that are applicable)	6-41 and 6-75

Checklist 1: Applicability and Identification of Equipment

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

Note: A “yes” response to question A.1 in this checklist means the equipment is not subject to the equipment leak requirements in subpart MMM; all other equipment in PAI processes is subject to subpart MMM. A “yes” response to a question in section B of this checklist means compliance with that requirement, and a “no” response means noncompliance with the requirement.

				Comments
A.	**Applicability**			**Comments**
1.	Do you have equipment that is used as follows: *§63.1363(a)(1), (5), (6), and (8)*			
	• in vacuum service?	☐ Yes	☐ No	
	• in bench-scale processes?	☐ Yes	☐ No	
	• that do not contain process fluids (e.g., utilities and heating and cooling systems that do not combine their materials with process materials)?	☐ Yes	☐ No	
	• not in organic HAP service?	☐ Yes	☐ No	
B.	**Review Records and Inspection**			**Comments**
1.	Do your records identify each piece of equipment covered by the equipment leak provisions (i.e., that are in organic HAP service as part of a PAI process) using **any** combination of the following methods: *§63.1363(a)(7)*			
	• physically tagging the equipment	☐ Yes	☐ No	
	• marking the equipment on a plant site plan	☐ Yes	☐ No	
	• marking the equipment in log entries	☐ Yes	☐ No	
	• designating process boundaries with waterproof identification	☐ Yes	☐ No	
	• another appropriate method for identifying equipment	☐ Yes	☐ No	
	Note: connectors do not need to be individually identified if all of the connectors in an area are identified as a group and the number of connectors is identified. *You do not need to identify individual components in instrumentation systems.* *Other checklists list specific components that must be separately identified because they meet a specific design or operating characteristic.*			

Checklist 1: *(cont'd)*
Applicability and Identification of Equipment

B.	**Review Records and Inspection**			**Comments**
2.	Do you have records identifying all equipment in organic HAP service for <300 hr/yr? *§63.1363(g)(9)* *Note: this equipment is not subject to any other requirements under subpart MMM.*	☐ Yes	☐ 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 a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring, Inspection, and Design Requirements**			**Comments**
1.	Did you monitor for leaks from each pump and agitator using the method in §63.180(b)? *§63.1363(c)(2)(i)* *Note: pumps and agitators without an externally actuated shaft penetrating the pump or agitator housing are exempt from the monitoring requirement.*	☐ Yes	☐ No	
2.	Have you performed weekly visual inspections of each pump and agitator (including those equipped with dual mechanical seals) for indications of liquids dripping from the pump or agitator seal? *§63.1363(c)(2)(iii)* *Note: weekly inspections are not required for unmanned sites, but the pumps and agitators must be inspected at least monthly. Pumps and agitators without an externally actuated shaft penetrating the pump or agitator housing are exempt from the inspection requirement.*	☐ Yes	☐ No	
3.	Did you calculate the percent of leaking **pumps** using the procedure outlined in §63.1363(c)(4):			
	• determine all groups of processes before the end of the first monitoring period?	☐ Yes	☐ No	
	• calculate 1-year rolling average of percent leakers (or only the number leaking if there are <30 pumps in a group of processes)?	☐ Yes	☐ No	
	• determine the total number of pumps in a group of processes as the sum of all pumps in organic HAP service?	☐ Yes	☐ No	
	Note: leaking pumps in a continuous process in the first quarter after startup do not have to be included in the percent leaking calculation for that monitoring period. *You do not have to calculate percent leakers for pumps in a group of processes if >90% of the pumps in the group have no externally actuated shaft penetrating the pump housing and/or dual mechanical seals with a barrier fluid system.*			

Checklist 2: ***(cont'd)***
Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service

A.	**Monitoring, Inspection, and Design Requirements**			**Comments**
4.	Did you monitor each pump monthly if (based on a 1-year rolling average) the greater of either: *§63.1363(c)(4)(ii)* • 10 percent of the pumps in a group of processes leak, or • three pumps in a group of processes leak *Note: you may return to quarterly monitoring after a 1-year rolling average no longer meets either of these conditions.*	☐ Yes	☐ No	
5.	For pumps and agitators that you have designated as unsafe to monitor or difficult to monitor, do you monitor at the frequency specified in your written plan? *§63.1363(f)*	☐ Yes	☐ No	
6.	Does each pump and agitator equipped with a dual mechanical seal have all of the following: *§63.1363(c)(5)*			
	• a barrier fluid system that meets one of the following: ‣ a barrier fluid pressure that is always greater than the pump/agitator stuffing box pressure, or ‣ a barrier fluid degassing reservoir connected by a closed-vent system to a control device, or • a closed-loop system that purges the barrier fluid into a process stream	☐ Yes	☐ No	
	• a barrier fluid that is not in organic HAP service?	☐ Yes	☐ No	
	• a sensor that will detect failure of the seal system, the barrier fluid system, or both?	☐ Yes	☐ No	
7.	For each pump and agitator with dual mechanical seals, do you check the sensor daily, or does it have an alarm? *§63.1363(c)(5)(v)*	☐ Yes	☐ No	
8.	When you observe liquids dripping from a pump or agitator seal during a weekly visual inspection, did you do either of the following: *§63.1363(c)(2)(iii) and (c)(5)(iv)* • stop the liquids from dripping, or • monitor for leaks using a leak detection instrument?	☐ Yes	☐ No	
9.	When you detected a leak based on the results of monitoring with a leak detection instrument, did you do both of the following: *§63.1363(a)(10)*			
	• attach a visible, weatherproof identification to the leaking pump or agitator?	☐ Yes	☐ No	
	• leave the identification on the pump or agitator until after the leak was repaired?	☐ Yes	☐ No	

Checklist 2: ***(cont'd)***
Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service

B.	**Leak Repair Requirements**			**Comments**
1.	When you detected a leak, did you do both of the following: *§63.1363(c)(3)*			
	• make your first attempt to repair the leak within 5 days after detecting it?	☐ Yes	☐ No	
	• either fully repair the leak within 15 days after detecting it, or delay repair for any of the reasons in question 2?	☐ Yes	☐ No	
	Note: first attempts to repair leaking pumps include tightening of packing gland nuts and ensuring the seal flush is operating at design pressure and temperature.			
2.	If you delayed repair, was it for one of the following reasons: *§§63.1363(b)(3)(i), (c)(3)(i), and 63.171* • the repair was technically infeasible without a process unit shutdown, or • you determined that repair personnel would be exposed to an immediate danger if attempting to repair without a process unit shutdown, or • the equipment was isolated from the process and did not remain in organic HAP service, or • 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, or • pump repair requires replacement of the existing seal with a new system that will better meet the PAI rule requirements? *§63.1363(c)(3)*	☐ Yes	☐ No	
3.	If you determined that a repair was technically infeasible or would expose repair personnel to an immediate danger 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) and (B) as cross referenced by §63.1363(c)(3)(i)*	☐ Yes	☐ No	
4.	If you determined that emissions purged from an **agitator** 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 agitator leak repair (or otherwise collect and destroy purged material)? *§63.171(c) as cross referenced by §63.1363(c)(3)(i)*	☐ Yes	☐ No	
5.	If you determined that **pump** repair required replacement of the existing seal with a new system to better meet the PAI rule requirements, did you repair the leak less than 6 months from the time when the leak was detected? *§63.171(d) as cross referenced by §63.1363(c)(3)*	☐ Yes	☐ No	

Checklist 2: *(cont'd)*
Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service

C.	Recordkeeping and Reporting Requirements			Comments
1.	Do your records include any updates to identification numbers prepared as specified in checklist 1 for pumps and agitators subject to the LDAR requirements (option 1)? *§63.1363(g)(2)(i)(A)* *Note: updates must occur within 15 days after the conclusion of the monitoring period during which the changes occurred.*	☐ Yes	☐ No	
2.	Do your records include the following information for each sensor that is used to detect failure of the seal system and/or barrier fluid system for pumps and agitators that have a dual mechanical seal system: *§63.1363(g)(2)(v)*			
	• design criteria that indicate failure of the seal system, the barrier fluid system, or both	☐ Yes	☐ No	
	• your explanation of the design criteria	☐ Yes	☐ No	
	• any changes to the design criteria and the reasons for the changes	☐ Yes	☐ No	
3.	Do your records include a list of pumps and agitators designated as unsafe to monitor or difficult to monitor, and do you have a written plan for monitoring or inspecting this equipment? *§63.1363(g)(2)(vi)*	☐ Yes	☐ No	
4.	Do your records include the occurrence and date of each weekly visual inspection for leaks in pumps and agitators? *§63.1363(g)(3)*	☐ Yes	☐ No	
5.	For each leak that you detected, have you recorded: *§63.1363(g)(4)*			
	• the instrument and the equipment identification number and the operator name, initials, or identification number?	☐ Yes	☐ No	
	• date the leak was detected?	☐ Yes	☐ No	
	• date of the first attempt to repair the leak?	☐ Yes	☐ No	
	• date of successful leak repair?	☐ Yes	☐ No	
	• maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable?	☐ Yes	☐ No	
	• all of the following if repairs were delayed beyond 15 days after leak detection:			
	▸ reason for the delay?	☐ Yes	☐ No	
	▸ dates of process shutdowns that occur while the equipment is unrepaired?	☐ Yes	☐ No	

Checklist 2: ***(cont'd)***
Requirements for pumps in light liquid service and agitators in gas/vapor and in light liquid service

C.	Recordkeeping and Reporting Requirements			Comments
6.	Did you include the following in your periodic report for each monitoring period during the 6-month reporting period? *§63.1363(h)(3)(ii)(C), (D), (I), and (K)*			
	• the number of pumps and agitators for which leaks were detected?	☐ Yes	☐ No	
	• the total number of pumps and agitators monitored?	☐ Yes	☐ No	
	• the percent leaking pumps?	☐ Yes	☐ No	
	• the number of pumps and agitators for which leaks were not repaired?	☐ Yes	☐ No	
	• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible?	☐ Yes	☐ No	
	• if applicable, a statement that a monthly monitoring program was initiated because a 1-year rolling average showed more than 10 percent of pumps in light liquid service (or three pumps if three is greater than 10 percent) were leaking?	☐ Yes	☐ No	
7.	When any of the information regarding pumps and agitators in your notification of compliance status report changes, do you include the revised information in your next periodic report? *§ 63.1363(h)(3)(iv)*	☐ Yes	☐ No	
8.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	

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 a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Operating Requirements**			**Comments**
1.	Have you equipped open-ended valves or lines with a cap, blind flange, plug, or a second valve? *§63.1363(d)(1)(i)*	☐ Yes	☐ No	
2.	Does the open end remain sealed at all times except when either: *§63.1363(d(1)(ii)* • operations require flow of process fluid through the open-ended valve or line, or • maintenance or repair is being conducted?	☐ Yes	☐ No	
3.	Did you replace the seal within 1 hour after completion of the activities in question 2? *§63.1363(d)(1)(ii)*	☐ Yes	☐ No	
4.	If you equipped open-ended valves or lines with a second valve, have you ensured that the valve on the process fluid end is closed before the second valve is closed? *§63.1363(d)(2)*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	If necessary, have you updated identification numbers prepared as specified in checklist 1 for open-ended valves or lines subject to the LDAR requirements (option 1) to reflect equipment changes? *§63.1363(g)(2)(i)(A)* *Note: updates must occur within 15 days after the conclusion of the monitoring period during which the changes occurred.*	☐ Yes	☐ No	
2.	When any of the information regarding open-ended valves and lines in your notification of compliance status report changes, do you include the revised information in your next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
3.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ 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 a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirements**			**Comments**
1.	Did you monitor for leaks from valves using the method in §63.180(b) by no later than 1 year after the compliance date (e.g., by December 23, 2004 for existing sources)? *§63.1363(e)(2)*	☐ Yes	☐ No	
2.	Have you assigned valves to groups of processes or subgroups according to the procedures outlined in §63.1363(e)(5) and (6)?	☐ Yes	☐ No	
3.	Have you determined the percent leakers for the group or subgroup according to the procedures specified in §63.1363(e)(5) and (6)?	☐ Yes	☐ No	
4.	Do you determine the length of your next monitoring period for valves in your group or subgroup based on the percent leakers calculated in question 3? *§63.1363(e)(4)*	☐ Yes	☐ No	
5.	If you subgroup valves, do you determine the overall performance of valves in the group of processes from which the subgroups were developed every 6 months? *§63.1363(e)(5)(iii) and (e)(6)(ii)*	☐ Yes	☐ No	
6.	If you subgroup valves and the overall group of processes from which the subgroups were developed has ≥2 percent leakers, do you stop using the subgroups and monitor all of the valves in the group of processes monthly? *§63.1363(e)(5)(iii)*	☐ Yes	☐ No	
7.	For valves that you have designated as unsafe to monitor or difficult to monitor, do you monitor at the frequency specified in your written plan? *§63.1363(f)*	☐ Yes	☐ No	
8.	When you detected a leak based on the results of monitoring with a leak detection instrument, did you do both of the following: *§63.1363(a)(10)*			
	• attach a visible, weatherproof identification to the leaking valve?	☐ Yes	☐ No	
	• leave the identification on the valve until after it was monitored as specified in §63.1363(e)(7)(iii) (i.e., within 3 months after successful repair)?	☐ Yes	☐ No	

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

B.	**Leak Repair Requirements**			**Comments**
1.	When you detected a leak, did you do both of the following: *§63.1363(e)(7) and (8)*			
	• make your first attempt to repair the leak within 5 days after detecting the leak?	☐ Yes	☐ No	
	• either fully repair the leak within 15 days after detecting it, or delay repair for any of the reasons in question 2?	☐ Yes	☐ No	
	Note: first attempts to repair leaking valves include tightening or replacement of bonnet bolts, tightening of packing gland nuts, and injection of lubricant into lubricated packing.			
2.	If you delayed repair, was it for one of the following reasons: *§§63.1363(b)(3)(i), (e)(7)(i), and 63.171* • the repair was technically infeasible without a process unit shutdown, or • you determined that repair personnel would be exposed to an immediate danger if attempting to repair without a process unit shutdown, or • the equipment was isolated from the process and did not remain in organic HAP service, or • 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, or • valve assembly supplies are not on hand and valve replacement is needed during a process unit shutdown?	☐ Yes	☐ No	
3.	If you determined that a repair was technically infeasible or would expose repair personnel to an immediate danger 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) and (B) as cross referenced by §63.1363(e)(7)(i)*	☐ Yes	☐ No	
4.	If you determined that emissions purged from a valve during immediate leak repair would be greater than emissions resulting from delaying the repair, did you use a control device to reduce emissions generated during leak repair? *§63.171(c) as cross referenced by §63.1363(e)(7)(i)*	☐ Yes	☐ No	
5.	If valve assembly supplies were not on hand during a process unit shutdown when valve replacement was needed, did you replace the valve assembly during the next process unit shutdown (unless a third shutdown occurred within 6 months from the first process unit shutdown)? *§63.171(e) as cross referenced by §63.1363(e)(7)(i)*	☐ Yes	☐ No	

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

B.	**Leak Repair Requirements**			**Comments**
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 (in addition to the monitoring that verifies repair was successful)? *§63.1363(e)(7)(iii)*	☐ Yes	☐ No	

C.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do your records include any updates to identification numbers prepared as specified in checklist 1 for valves subject to the equipment leak requirements? *§63.1363(g)(2)(i)(A)* *Note: updates must occur within 15 days after the conclusion of the monitoring period during which the changes occurred.*	☐ Yes	☐ No	
2.	Do your records include a valve monitoring schedule? *§63.1363(g)(2)(i)(B)*	☐ Yes	☐ No	
3.	Do your records include all of the following information pertaining to assignment of valves to process subgroups: *§63.1363(e)(5)(iv)*			
	• which valves are assigned to each subgroup?	☐ Yes	☐ No	
	• monitoring results and calculations made for each subgroup for each monitoring period?	☐ Yes	☐ No	
	• which valves have been reassigned and when they were reassigned?	☐ Yes	☐ No	
	• results of the semiannual overall performance calculation for the group of processes?	☐ Yes	☐ No	
4.	Did you notify the Administrator of the decision to subgroup valves earlier than 30 days before the beginning of the monitoring period? (The notification must identify the participating processes and the valves assigned to each subgroup.) *§63.1363(e)(5)(v)*	☐ Yes	☐ No	
5.	Do your records include a list of valves that you designated as unsafe to monitor or difficult to monitor, and do you have a written plan for monitoring or inspecting this equipment? *§63.1363(g)(2)(vi)*	☐ Yes	☐ No	
6.	For each leak that you detected, have you recorded: *§63.1363(g)(4)*			
	• the instrument and the equipment identification number and the operator name, initials, or identification number?	☐ Yes	☐ No	
	• date the leak was detected?	☐ Yes	☐ No	
	• date of the first attempt to repair the leak?	☐ Yes	☐ No	
	• date of successful leak repair?	☐ Yes	☐ No	

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

C.	**Recordkeeping and Reporting Requirements**			**Comments**
	• maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable?	☐ Yes	☐ No	
	• all of the following if repairs were delayed beyond 15 days after leak detection:			
	▸ reason for the delay?	☐ Yes	☐ No	
	▸ dates of process shutdowns that occur while the equipment is unrepaired?	☐Yes	☐ No	
7.	Did you include all of the following in your periodic report for each monitoring period during the 6-month reporting period? *§63.1363(h)(3)(ii)(A), (B), (I), and (K)*			
	• the number of valves with leaks detected?	☐ Yes	☐ No	
	• the total number of valves monitored?	☐ Yes	☐ No	
	• the percent leakers?	☐ Yes	☐ No	
	• the number of valves with leaks that were not repaired and the number of those valves that are non-repairable?	☐ Yes	☐ No	
	• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible?	☐ Yes	☐ No	
	• if applicable, a statement that a monthly monitoring program was initiated if 2 percent or more valves leak in a group of processes that has subgroups?	☐ Yes	☐ No	
8.	Did you include the following information in your periodic report: *§63.1363(e)(5)(vi)*			
	• valve reassignments that occurred during the reporting period?	☐ Yes	☐ No	
	• results of the semiannual overall performance calculation?	☐ Yes	☐ No	
9.	When any of the information regarding valves in your notification of compliance report changes, do you include the revised information in you next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
10.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	

Checklist 5: Requirements for compressors (Option 1)

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Design and Monitoring 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)* *Note: this requirement does not apply to compressors that you designate as operating with a leak detection instrument reading of less than 500 ppm above background.*	☐ Yes	☐ No	
2.	Does each compressor seal system meet any of the following: *§63.164(b)* • operated with the barrier fluid pressure greater than the compressor stuffing box pressure, or • 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, or • equipped with a closed-loop system that purges the barrier fluid directly into a process stream	☐ Yes	☐ No	
3.	Is each barrier fluid in heavy liquid service? *§63.164(c)*	☐ Yes	☐ No	
4.	Is the barrier fluid system equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both the seal and barrier fluid system? *§63.164(d)*	☐ Yes	☐ No	
5.	Have you observed the barrier fluid system failure sensor daily (unless the sensor has an alarm or the equipment is at an unmanned plant site)? *§63.164(e)*	☐ Yes	☐ No	
6.	For each compressor that you designated to operate with an instrument reading of less than 500 ppm above background, have you monitored using a leak detection instrument to demonstrate compliance with the 500 ppm limit at all of the following times:. *§63.164(i)*			
	• upon designation?	☐ Yes	☐ No	
	• annually?	☐ Yes	☐ No	
	• any other times requested by the Administrator?	☐ Yes	☐ No	

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

A.	Design and Monitoring Requirements			Comments
7.	When your sensor detected a failure (i.e., a leak), did you do both of the following: *§63.1363(a)(10)*			
	• attach a visible, weatherproof identification to the leaking compressor?	☐ Yes	☐ No	
	• leave the identification on the compressor until after the leak was repaired?	☐ Yes	☐ No	
B.	**Leak Repair Requirements**			**Comments**
1.	When a sensor detects a failure, did you do both of the following: *§63.164(g)*			
	• make your first attempt to repair the leak within 5 days after detecting it?	☐ Yes	☐ No	
	• either fully repair the leak within 15 days after detecting it, or delay repair for any of the reasons in question 2?	☐ Yes	☐ No	
2.	If you delayed repair, was it for one of the following reasons: *§§63.1363(b)(3)(i)(A) and (B), 63.164(g)(1), and 63.171*	☐ Yes	☐ No	
	• the repair is technically infeasible without a process unit shutdown?			
	• you determined that repair personnel would be exposed to an immediate danger if attempting to repair without a process unit shutdown?			
	• the equipment was isolated from the process and does not remain in organic HAP service?			
3.	If you determined that a repair was technically infeasible or would expose repair personnel to an immediate danger 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) and (B) as cross referenced by §63.164(g)(1)*	☐ Yes	☐ No	
C.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	If necessary, have you updated identification numbers prepared as specified in checklist 1 for compressors subject to the LDAR requirements (option 1) to reflect equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2.	Do your records include identification numbers for compressors that you designated as operating with an instrument reading of less than 500 ppm above background *§63.1363(g)(2)(ii)(B)*	☐ Yes	☐ No	

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

C.	Recordkeeping and Reporting Requirements			Comments
3.	Do your records include all of the following information for each sensor used to detect failure of the compressor system and/or barrier fluid system: *§63.1363(g)(2)(v)*			
	• design criteria that indicates failure of the seal system and/or the barrier fluid system?	☐ Yes	☐ No	
	• your explanation of the design criteria?	☐ Yes	☐ No	
	• any changes to the design criteria and the reasons for the changes	☐ Yes	☐ No	
4.	For each leak that you detected, did you record: *§63.1363(g)(4)*			
	• date the leak was detected?	☐ Yes	☐ No	
	• date of the first attempt to repair the leak?	☐ Yes	☐ No	
	• date of successful leak repair?	☐ Yes	☐ No	
	• maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable?	☐ Yes	☐ No	
	• whether the repair is delayed for more than 15 days after leak discovery and the reason for the delay?	☐ Yes	☐ No	
	• all of the following if repairs were delayed beyond 15 days after leak detection			
	▸ reason for the delay?	☐ Yes	☐ No	
	▸ dates of process shutdowns that occur while the equipment is unrepaired?	☐ Yes	☐ No	
5.	Did you record all of the following for each test used to demonstrate compliance with the 500 ppm limit for designated compressors: *§63.1363(g)(6)*			
	• date of each test?	☐ Yes	☐ No	
	• measured background level?	☐ Yes	☐ No	
	• maximum instrument reading?	☐ Yes	☐ No	

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

C.	Recordkeeping and Reporting Requirements			Comments
6.	Do you include all of the following in your periodic report for each monitoring period during the 6-month reporting period? *§63.1363(h)(3)(ii)(E), (F), and (J)*			
	• the number of compressors for which leaks were detected?	☐ Yes	☐ No	
	• the number of compressors for which leaks were not repaired?	☐ Yes	☐ No	
	• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible?	☐ Yes	☐ No	
	• the results of all monitoring to show compliance with the 500 ppm limit for compressors designated to operate below 500 ppm?	☐ Yes	☐ No	
7.	When any of the information regarding compressors in your notification of compliance status report changes, do you include the revised information in you next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
8.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ 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 a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirements**			**Comments**
	Note: You are exempt from the requirements for pressure relief devices in gas/vapor service if your pressure relief device is routed to a process. *§ 63.165(c)*			
1.	Do your pressure relief devices have either: *§§63.165(a) and 63.165(d)* • 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), or • a rupture disk upstream of the pressure relief device?	☐ Yes	☐ No	
2.	Following a pressure release, do you either: • 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, or *§63.165(b)* • place a rupture disk upstream of your pressure relief device within 5 days following the pressure release? *§63.165(d)* *Note that if you install a rupture disk, you are exempt from monitoring for 500 ppm.*	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	If necessary, have you updated identification numbers prepared as specified in checklist 1 for pressure relief devices subject to the LDAR requirements (option 1) to reflect equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2.	Do your records include identification numbers for pressure relief devices that are either of the following: *§63.1363(g)(2)(iii)* • subject to the LDAR requirement to operate with an instrument reading of <500 ppm, or • equipped with rupture disks?	☐ Yes	☐ No	

Checklist 6: *(cont'd)*
Requirements for pressure relief devices in gas/vapor service

B.	Recordkeeping and Reporting Requirements			Comments
3.	Did you record all of the following for each test used to demonstrate compliance with the 500 ppm operating limit: *§63.1363(g)(6)*			
	• date of each test?	☐ Yes	☐ No	
	• measured background concentration?	☐ Yes	☐ No	
	• maximum instrument reading?	☐ Yes	☐ No	
4.	Have you included the results of monitoring with a leak detection instrument after pressure releases in your next periodic report? *§63.1363(h)(3)(ii)(J)*	☐ Yes	☐ No	
5.	When any of the information regarding pressure relief devices in your notification of compliance status report changes, have you included the revised information in your next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
6.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	

Checklist 7: Requirements for sampling connection systems (Option 1)

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Design Requirements**			**Comments**
	Note: In-situ sampling systems and sampling systems without purges are exempt from the requirements for sampling connection systems. *§63.166(c)*			
1.	Do each of your sampling connection systems have a closed-purge, closed-loop, or closed-vent system? *§63.166(a)*	☐ Yes	☐ No	
2.	Do the closed-purge, closed-loop, or closed-vent systems do one of the following: *§63.166(b)* • return the purged process fluid directly to the process line from which it was removed, or • collect and recycle purged process fluid to any process, or • capture and transport purged process fluid to a control device, or • collect, store, and transport purged process fluid to a waste management unit, TSDF, or permitted waste management facility?	☐ Yes	☐ No	

B.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	If necessary, have you updated any identification numbers prepared as specified in checklist 1 for sampling connection systems subject to the LDAR requirements (option 1) to reflect equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2.	When any of the information regarding sampling connection systems in your notification of compliance status report changed, did you include the revised information in your next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
3.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ 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 a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring Requirement**			**Comments**

1.	After detecting a potential leak by sensory observations, do you either: *§63.169(a) and (c)(3)*
	• monitor for leaks using the method in § 63.180(b) within 5 days after the potential leak is detected, or
	• repair the leak such that any of the following are true:
	  • you can no longer see, hear, smell, or otherwise detect the potential leak, or
	  • you see no bubbles at potential leak sites during a leak check with soap solution, or
	  • the system will hold a test pressure?
		☐ Yes	☐ No	

2.	When you detected a leak based on the results of monitoring with a leak detection instrument, did you do both of the following: *§63.1363(a)(10)*			
	• attach a visible, weatherproof identification to the leaking equipment?	☐ Yes	☐ No	
	• leave the identification on the equipment until after the leak was repaired?	☐ Yes	☐ No	
B.	**Leak Repair Requirements**			**Comments**
1.	When you detected a leak, did you do both of the following: *§63.169(c)(1) and (2)*			
	• make your first attempt to repair the leak within 5 days after detecting it?	☐ Yes	☐ No	
	• either fully repair the leak within 15 days after detecting it, or delay repair for any of the reasons in question 2?	☐ Yes	☐ No	
	Note: examples of first attempts to repair leaking valves include tightening or replacement of bonnet bolts, tightening of packing gland nuts, and injection of lubricant into lubricated packing. Examples of first attempts to repair leaking pumps include tightening of packing gland nuts and ensuring the seal flush is operating at design pressure and temperature.			

Checklist 8: ***(cont'd)***
Requirements for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service

B.	Leak Repair Requirements			Comments
2.	If you delayed repair, was it for one of the following reasons: *§§63.1363(b)(3)(i), 63.171, and 63.169(c)(1)* • the repair was technically infeasible without a process unit shutdown, or • you determined that repair personnel would be exposed to an immediate danger if attempting to repair without a process unit shutdown, or • the equipment was isolated from the process and did not remain in organic HAP service, or • emissions purged from valves, connectors, or agitators during immediate repair would be greater than emissions resulting from delaying the repair and using a control device to reduce the emissions, or • pump repair required replacement of the existing seal with a new system that will better meet the PAI rule requirements, or • valve assembly replacement was necessary during a process unit shutdown, but valve assembly supplies were not on hand even though they had been sufficiently stocked before being depleted?	☐ Yes	☐ No	
3.	If you determined that a repair was **technically infeasible** or would expose repair personnel to an **immediate danger** without a process unit shutdown, did you complete the repair by the end of the next process unit shutdown? *§§63.1363(b)(3)(i) and 63.169(c)(1)*	☐ Yes	☐ No	
4.	If you determined that emissions purged from **valves, connectors, or agitators** 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)(1)*	☐ Yes	☐ No	
5.	If you determined that **pump** repair required replacement of the existing seal with a new system to better meet the PAI rule requirements, did you repair the leak less than 6 months from the time when the leak was detected? *§63.171(d) as cross referenced by §63.169(c)(1)*	☐ Yes	☐ No	
6.	If **valve** assembly supplies were not on hand during a process unit shutdown when valve replacement was needed, did you replace the valve assembly during the next process unit shutdown (unless a third shutdown occurred within 6 months from the first process unit shutdown)? *§63.171(e) as cross referenced by §63.169(c)(1)*	☐ Yes	☐ No	

Checklist 8: *(cont'd)*
Requirements for pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service

C.	Recordkeeping and Reporting Requirements			Comments
2.	If necessary, have you updated equipment identification numbers prepared as specified in checklist 1 to reflect any equipment changes? *§63.1363(g)(2)(i)(A) and (iv)*	☐ Yes	☐ No	
3.	For each leak that you detected, have you recorded: *§63.1363(g)(4)*			
	• the instrument and the equipment identification number and the operator name, initials, or identification number?	☐ Yes	☐ No	
	• date the leak was detected?	☐ Yes	☐ No	
	• date of the first attempt to repair the leak?	☐ Yes	☐ No	
	• date of successful leak repair?	☐ Yes	☐ No	
	• maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable?	☐ Yes	☐ No	
	• all of the following if repairs were delayed beyond 15 days after leak detection:			
	▸ reason for the delay?	☐ Yes	☐ No	
	▸ dates of process shutdowns that occur while the equipment is unrepaired?	☐ Yes	☐ No	
4.	When any of the information in your notification of compliance status report regarding equipment in heavy liquid service, instrumentation systems, or pressure relief devices in liquid service changed, did you include the revised information in your next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
5.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	

Checklist 9: 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 a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring and Inspection Requirements**			**Comments**
1.	Did you monitor for leaks from each connector using the method in §63.180(b)? *§63.174(a)*	☐ Yes	☐ No	
2.	Did you perform initial monitoring of all connectors either: • within 12 months after the compliance date at existing sources, or *§63.174(b)(1)* • within 12 months after initial start-up at new sources (except that it does not have to be completed earlier than June 23, 2000)? *§63.174(b)(2)*	☐ Yes	☐ No	
3.	Have you determined your percent leaking connectors using the methods in §63.174(i)?	☐ Yes	☐ No	
4.	If you elected to take credit for elimination of a connector in your percent leaking calculation, were all of the following requirements met: *§63.174(j)*			
	• The connector was welded after November 10, 1997?	☐ Yes	☐ No	
	• The integrity of the weld was demonstrated by Method 21 monitoring, X-ray testing, acoustic monitoring, hydrotesting, or other method?	☐ Yes	☐ No	
	• Welds created after November 10, 1997 but before June 23, 1999 were monitored or tested by 3 months after the compliance date?	☐ Yes	☐ No	
	• Welds created after June 23, 1999 were monitored or tested within 3 months after being welded? *Note: If the weld is inadequate, or the connector was not welded completely around the circumference, you can not eliminate the connector from the monitoring requirements.*	☐ Yes	☐ No	

Checklist 9: *(cont'd)*
Requirements for connectors in gas/vapor service and in light liquid service

A.	Monitoring and Inspection Requirements			Comments
5.	Have you performed repeat monitoring at the time intervals below that apply to you: *§63.1363(b)(3)(iii)* • each year (or every 2 years) if your percent leaking connectors is ≥0.5%, or • every 4 years if your percent leaking connectors is ≥0.25 to 0.5%, or • every 8 years if your percent leaking connectors is <0.25%? *Note: the periodic monitoring after the initial survey is not required for certain screwed connectors (see question 8).*	☐ Yes	☐ No	
6.	Have you monitored **connectors that have been opened** or have a **broken seal** using one of the following two options: *§63.174(c)(1)(i) and (ii)* • 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), or • Did not monitor the connector and did not count the connector as nonrepairable?	☐ Yes	☐ No	
7.	If you switched between the two monitoring alternatives in question 6, did you do both of the following: *§63.174(c)(1)(iii)*			
	• Make the switch at the end of the current monitoring period (and you reported the switch)?	☐ Yes	☐ No	
	• Complete initial monitoring in the new alternative no later than 12 months after you reported the switch?	☐ Yes	☐ No	
8.	If you elected not to monitor **screwed connectors** with an inside diameter of 2 inches or less that were installed before November 10, 1997, have you done one of the following: *§63.174(c)(2)* • complied with the requirements of §63.169 of subpart H (i.e., the same requirements as for connectors in heavy liquid service), or • both of the following each time the connector is opened or has the seal broken: ‣ monitored for leaks within the first 3 months after the connector is returned to organic HAP service, and ‣ repaired leaks detected by the monitoring?	☐ Yes	☐ No	
9.	For connectors that you have designated as unsafe to monitor or inaccessible, do you monitor at the frequency specified in your written plan? *§63.1363(f)*	☐ Yes	☐ No	

Checklist 9: *(cont'd)*
Requirements for connectors in gas/vapor service and in light liquid service

A.	**Monitoring and Inspection Requirements**			**Comments**
10.	When you detected a leak based on the results of monitoring with a leak detection instrument, did you do both of the following: *§63.1363(a)(10)*			
	• attach a visible, weatherproof identification to the leaking connector?	☐ Yes	☐ No	
	• leave the identification on the connector until after it was monitored and determined to be not leaking if you comply with §63.174(c)(1)(i), or until the leak was repaired if you comply with §63.174(c)(1)(ii)?	☐ Yes	☐ No	

B.	**Leak Repair Requirements**			**Comments**
1.	When you detected a leak, did you do both of the following: *§63.174(d)*			
	• make your first attempt to repair the leak within 5 days after detecting it?	☐ Yes	☐ No	
	• either fully repair the leak within 15 days after detecting it, or delay repair for any of the reasons in question 2?	☐ Yes	☐ No	
2.	If you delayed repair, was it for one of the following reasons: *§§63.1363(b)(3)(i), 63.171, and 63.174(d)* • the repair was technically infeasible without a process unit shutdown, or • you determined that repair personnel would be exposed to an immediate danger if attempting to repair without a process unit shutdown, or • the equipment was isolated from the process and did not remain in organic HAP service, or • emissions purged from the connector during immediate repair would be greater than emissions resulting from delaying the repair and using a control device to reduce the emissions?	☐ Yes	☐ No	
3.	If you determined that a repair was technically infeasible or would expose repair personnel to an immediate danger 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) and (B) as cross referenced by §63.174(d)*	☐ Yes	☐ No	
4.	If you determined that emissions purged from a connector during immediate leak repair would be greater than emissions resulting from delaying the repair, did you use a control device to reduce emissions generated during leak repair? *§63.171(c) as cross referenced by §63.174(d)*	☐ Yes	☐ No	

Checklist 9: *(cont'd)*
Requirements for connectors in gas/vapor service and in light liquid service

C.	Recordkeeping and Reporting Requirements			Comments
1.	Do your records include updates to the list of identification numbers prepared as specified in checklist 1 for connectors subject to LDAR requirements (option 1)? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
2.	Do your records include a schedule for monitoring connectors? *§63.1363(g)(2)(i)(B)*	☐ Yes	☐ No	
3.	Do your records include a list of connectors that you designated as unsafe to monitor or inaccessible, and do you have a written plan for monitoring or inspecting these connectors? *§63.1363(g)(2)(vi)*	☐ Yes	☐ No	
4.	If you have taken credit for removed connectors in your percent leaking calculation, do you have records of both of the following: *§63.1363(g)(2)(vii)*			
	• a listing of connectors removed from or added to the process?	☐ Yes	☐ No	
	• documentation of the integrity of the weld for removed connectors?	☐ Yes	☐ No	
5.	For each leak that you detected, have you recorded: *§63.1363(g)(4)*			
	• the instrument and the equipment identification number and the operator name, initials, or identification number?	☐ Yes	☐ No	
	• date the leak was detected?	☐ Yes	☐ No	
	• date of the first attempt to repair the leak?	☐ Yes	☐ No	
	• date of successful leak repair?	☐ Yes	☐ No	
	• maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable?	☐ Yes	☐ No	
	• all of the following if repairs were delayed beyond 15 days after leak detection:			
	▸ reason for the delay?	☐ Yes	☐ No	
	▸ dates of process shutdowns that occur while the equipment is unrepaired?	☐ Yes	☐ No	
	• identification of connectors in gas/vapor and light liquid service disturbed since the last monitoring period (unless you use the option for not monitoring open connectors during the monitoring period).	☐ Yes	☐ No	

Checklist 9: *(cont'd)*
Requirements for connectors in gas/vapor service and in light liquid service

C.	Recordkeeping and Reporting Requirements			Comments
6.	Did you include the following in your periodic report for each monitoring period during the 6-month reporting period: *§§63.1363(h)(3)(ii)(G), (H), (I), and (L)*			
	• the number of connectors in gas/vapor or light liquid service for which leaks were detected as described?	☐ Yes	☐ No	
	• the total number of connectors monitored?	☐ Yes	☐ No	
	• the percent leaking?	☐ Yes	☐ No	
	• the number of connectors in gas/vapor or light liquid service for which leaks were not repaired, and the number of those that are determined non-repairable?	☐ Yes	☐ No	
	• the facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible?	☐ Yes	☐ No	
	• if applicable, notification of a change in connector monitoring alternatives for connectors that have been opened or have broken seals?	☐ Yes	☐ No	
7.	When any information in your notification of compliance status report regarding connectors changed, did you include the revised information in your next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
8.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	

Checklist 10: Requirements for closed-vent systems and control devices (Option 2)

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Operating Requirements**			**Comments**
1.	Have you operated your closed-vent system and control device at all times when organic HAP emissions are being vented? *§63.172(m)*	☐ Yes	☐ No	
2.	If you operate a recovery or capture device (e.g., condenser, absorber, etc.), have you met either ≥95 percent reduction or ≤20 ppmv? *§63.172(b)* *Note: The 20 ppmv standard is not applicable if you have enclosed the process unit.*	☐ Yes	☐ No	
3.	If you operate an enclosed combustion device, have you met either ≥95 percent reduction, ≤20 ppmv (dry basis, 3 percent oxygen), or a minimum residence time of 0.5 sec. at 1400°F (760°C)? *§63.172(c)*	☐ Yes	☐ No	
4.	If you operate a flare, have you met the requirements of §63.11(b)? *§63.172(d)*	☐ Yes	☐ No	
5.	If you have enclosed a process unit, do you maintain your enclosure under negative pressure at all times? *§63.179*	☐ Yes	☐ No	

B.	**Monitoring and Inspection Requirements**			**Comments**
1.	If your closed-vent system is made of hard-piping, did you perform annual sensory inspections for indications of leaks based on sight, sound, or odor? *§63.172(f)(1)(ii)* *Note: the inspection is not required if the closed-vent system operates under negative pressure.*	☐ Yes	☐ No	
2.	If your vapor collection system or closed-vent system is made of duct work, did you conduct annual inspections using a leak detection instrument according to the procedures in §63.180(b)? *§63.172(f)(2)(ii) and (g)* *Note: the inspection is not required if the closed-vent system operates under negative pressure.*	☐ Yes	☐ No	

Checklist 10: *(cont'd)*
Requirements for closed-vent systems and control devices

B.	**Monitoring and Inspection Requirements**			**Comments**
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: *§63.172(j)* • Used a flow indicator that takes a reading at least once every 15 minutes at the entrance of the bypass line, or • Secured the bypass line valve in the non-diverting position with a car-seal or a lock-and-key type configuration? *Note: Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to the monitoring requirements for bypass lines. §63.172(j)(3)*	☐ Yes	☐ No	
4.	If you secured the bypass line valve in the non-diverting position as specified in question 3, did you visually inspect the seal or closure mechanism monthly to ensure the valve is maintained in the non-diverting position? *§63.172(j)(2)*	☐ Yes	☐ No	
5	If your closed-vent system is designed to operate below atmospheric pressure, have you installed a pressure measurement device in a readily accessible location? *§63.1363(b)(3)(ii)(B)*	☐ Yes	☐ No	
C.	**Leak Repair Requirements**			**Comments**
1.	When you detected a leak, did you do both of the following: *§63.172(h)*			
	• make your first attempt to repair the leak within 5 days after detecting it?	☐ Yes	☐ No	
	• either fully repair the leak within 15 days after detecting it, or delay repair for any of the reasons in question 2?	☐ Yes	☐ No	
2.	If you delayed repair, was it for one of the following reasons: *§63.172(i)* • the repair was technically infeasible without a process unit shutdown, or • emissions resulting from immediate repair of the leak would be greater than the fugitive emissions likely to result from delay of repair?	☐ Yes	☐ No	
3.	If you determined that a repair was technically infeasible without a process unit shutdown, did you complete the repair by the end of the next process unit shutdown? *§63.172(i)*	☐ Yes	☐ No	

Checklist 10: *(cont'd)*
Requirements for closed-vent systems and control devices

D.	Recordkeeping and Reporting Requirements			Comments
1.	Do your records of identification numbers prepared as specified in checklist 1 indicate each component in the following categories of equipment that are equipped with a closed-vent system and comply with option 2: *§63.1363(g)(2)(ii)(A)*			
	• pumps in light liquid service?	☐ Yes	☐ No	
	• agitators in gas/vapor and light liquid service?	☐ Yes	☐ No	
	• compressors?	☐ Yes	☐ No	
	• pressure relief devices in gas/vapor service?	☐ Yes	☐ No	
2.	If necessary, do your records include updates to the list of identification numbers prepared as specified in checklist 1 to reflect any equipment changes? *§63.1363(g)(2)(i)(A)*	☐ Yes	☐ No	
3.	Do your records identify parts of closed-vent systems that you designated as unsafe to monitor or difficult to monitor, and do you have a written plan for monitoring or inspecting this equipment? *§63.1363(g)(2)(vi)*	☐ Yes	☐ No	
4.	When your sensory inspections or monitoring using a leak detection instrument identified a leak in a closed vent system, have you recorded: *§63.1363(g)(4) and (7)(iii)(B)*			
	• the instrument and the equipment identification number and the operator name, initials, or identification number (if applicable)?	☐ Yes	☐ No	
	• date the leak was detected?	☐ Yes	☐ No	
	• date of the first attempt to repair the leak?	☐ Yes	☐ No	
	• date of successful leak repair?	☐ Yes	☐ No	
	• maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after leak is successfully repaired or determined to be non-repairable?	☐ Yes	☐ No	
	• all of the following if repair was delayed:			
	▸ reason for the delay?	☐ Yes	☐ No	
	▸ dates of process shutdowns that occur while the equipment is unrepaired?	☐ Yes	☐ No	

Checklist 10: *(cont'd)*
Requirements for closed-vent systems and control devices

D. Recordkeeping and Reporting Requirements			Comments
5. If you use a flow indicator to monitor your closed-vent system bypass line, do you have all of the following records: *§63.172(j)*			
• hourly flow indicator readings?	☐ Yes	☐ No	
• times and durations of periods when the flow indicator was not operating?	☐ Yes	☐ No	
• times and durations of periods when the vent stream was diverted form the control device?	☐ Yes	☐ No	
6. Do your records include all of the following design and performance documentation for **control devices**: *§63.1363(g)(7)(i)*			
• detailed schematics, design specifications of the control device, and piping and instrumentation diagrams?	☐ Yes	☐ No	
• the dates and descriptions of any changes in the design specifications?	☐ Yes	☐ No	
• for flares: a description of the flare design (i.e., steam assisted, air assisted, or nonassisted) and the results of the compliance demonstration required by §63.11(b)?	☐ Yes	☐ No	
• a description of the parameter or parameters monitored to ensure that control devices are operated and maintained as designed and an explanation of why each parameter was selected for the monitoring?	☐ Yes	☐ No	
7. If you enclose a process, do you keep records of all of the following: *§63.1363(g)(10)*			
• identification of the process and the organic HAP it handles?	☐ Yes	☐ No	
• a schematic of the process, enclosure, and closed-vent system?	☐ Yes	☐ No	
• a description of the system used to create a negative pressure in the enclosure?	☐ Yes	☐ No	
8. Do your records include all of the following operational information for closed vent systems and control devices: *§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 (including periods when a flare pilot light system does not have a flame)?	☐ Yes	☐ No	
• dates and durations when the monitor is not operating?	☐ Yes	☐ No	
• dates and durations of startups and shutdowns of control devices?	☐ Yes	☐ No	

Checklist 10: ***(cont'd)***
Requirements for closed-vent systems and control devices

D.	Recordkeeping and Reporting Requirements			Comments
9.	If you detect no leaks during an visual inspection of a closed vent system, do you keep a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected? *§63.1363(g)(7)(iii)(A)*	☐ Yes	☐ No	
10.	Do your periodic reports include the following for each monitoring period during the 6-month reporting period: *§63.1363(h)(3)(ii)*			
	• the facts that explain any delay of repairs of a closed vent system and, where appropriate, why a process shutdown was technically infeasible?	☐ Yes	☐ No	
	• the results of all monitoring to show compliance with the provisions for inspections of closed vent systems?	☐ Yes	☐ No	
11.	For any control device that is subject to RCRA requirements, ave you identified in your periodic report whether you are complying with the monitoring, recordkeeping, and reporting requirements in either: *§63.172(n)*	☐ Yes	☐ No	
	• 40 CFR part 264, subpart BB, or in 40 CFR part 265, subpart BB, or			
	• subpart MMM (the PAI rule)?			
12.	When any of the information in your notification of compliance status report regarding equipment equipped with a closed vent system, closed-vent systems, enclosures, or control devices changed, did you include the revised information in your next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
13.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	

Checklist 11: Requirements for pressure testing (Option 3)

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

Note: A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If the requirement is not applicable, indicate "N/A" in the comments column.

A.	**Monitoring and Inspection Requirements**			**Comments**
1.	Do you perform pressure testing each time the equipment is reconfigured for production of a different product (using the procedures in §63.180(f) for pressure or vacuum loss or §63.180(g) for a test using liquid)? *§63.178(b)(1)* *Note: After equipment is reconfigured, only the new or disturbed equipment must be pressure tested. Also, pressure testing is not required for routine seal breaks.*	☐ Yes	☐ No	
2.	Regardless of how often equipment is reconfigured, do you pressure test at least once per year? *§63.178(b)(1)(iii)*	☐ Yes	☐ No	
B.	**Leak Repair Requirements**			**Comments**
1.	If you detected a leak during pressure testing, did you do one of the following: *§63.178(b)(4)* • repair the leak and retest the equipment before process start-up, or • repair the leak within 30 days after the second pressure test if the equipment failed the second test?	☐ Yes	☐ No	
2.	If you delayed repair of leaks for equipment in a process that was pressure tested, did all the following circumstances apply : *§63.178(d)*			
	• replacement equipment was not available?	☐ Yes	☐ No	
	• equipment supplies (which were sufficiently stocked) have been depleted?	☐ Yes	☐ No	
	• the repair is made no later than 10 days after delivery of the replacement equipment?	☐ Yes	☐ No	
C.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do you have records of all of the following: *§63.1363(g)(5)*			
	• identification of each product, or product code, produced during the calendar year?	☐ Yes	☐ No	
	• identification of equipment in the process on a plant site plan, in log entries, or by other appropriate methods?	☐ Yes	☐ No	

Checklist 11: *(cont'd)*
Requirements for pressure testing

C.	Recordkeeping and Reporting Requirements			Comments
	• the dates of each pressure test, the test pressure, and the pressure drop observed during the test?	☐ Yes	☐ No	
	• records of any evidence of fluid loss detected by sight, sound, or odor?	☐ Yes	☐ No	
	• all of the following information if a process equipment train failed two consecutive pressure tests (this information must be kept for 2 years):			
	▸ The dates of each pressure test and leak repair attempt?	☐ Yes	☐ No	
	▸ Repair methods applied in each attempt to repair the leak?	☐ Yes	☐ No	
	▸ The reason for the delay of repair?	☐ Yes	☐ No	
	▸ The expected date for delivery of the replacement equipment?	☐ Yes	☐ No	
	▸ The actual date of delivery of the replacement equipment?	☐ Yes	☐ No	
	▸ The date of successful repair?	☐ Yes	☐ No	
2.	Does your periodic report include all of the following information: *§63.1363(h)(3)(iii)*			
	• product process equipment train identification?	☐ Yes	☐ No	
	• the number of pressure tests conducted?	☐ Yes	☐ No	
	• the number of pressure tests where the equipment train failed either the retest or two consecutive pressure tests?	☐ Yes	☐ No	
	• explanation for any delay of repair?	☐ Yes	☐ No	
	• the results of all monitoring to determine compliance with the standards for inspection of closed-vent systems?	☐ Yes	☐ No	
3.	When any of the information in your notification of compliance status report regarding pressure testing changed, did you include the revised information in your next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
4.	Do you keep all records for at least 5 years (except as noted above)? *§63.1367(a)*	☐ Yes	☐ No	

Checklist 12: Requirements for alternative monitoring of batch processes (Option 4)

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

Note: A “yes” response to a question in this checklist means compliance with that requirement, and a “no” response means noncompliance with the requirement. If the requirement is not applicable, indicate “N/A” in the comments column. Also use checklists 2 through 9 for each type of equipment in the process, except where questions in this checklist conflict (e.g., use this checklist for the delay of repair requirements, and there is no first attempt at repair requirements under option 4).

A.	**Monitoring and Inspection Requirements**			**Comments**
1.	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 in accordance with both of the following intervals: *§63.178(c)(3)*			
	• within 30 days of process start-up each time the equipment is reconfigured for production of a new product?	☐ Yes	☐ No	
	• at the frequencies specified in §63.178(c)(3)(iii)?	☐ Yes	☐ No	
B.	**Leak Repair Requirements**			**Comments**
1.	When you detected a leak, did you repair the leak within no more than 15 days after the leak was detected (unless you met the delay of repair provisions)? *§63.178(c)(4)*	☐ Yes	☐ No	
2.	If you delayed repair of leaks, did all the following circumstances apply: *§63.178(d)*			
	• replacement equipment was not available?	☐ Yes	☐ No	
	• equipment supplies (which were sufficiently stocked) have been depleted?	☐ Yes	☐ No	
	• the repair is made no later than 10 days after delivery of the replacement equipment?	☐ Yes	☐ No	
C.	**Recordkeeping and Reporting Requirements**			**Comments**
1.	Do your records include a list of equipment added to batch processes since the last monitoring period? *§63.1363(g)(2)(viii)*	☐ Yes	☐ No	
2.	Do your records include the monitoring date and results for equipment added to a batch process since the last monitoring period? *§63.1363(g)(4)(viii)*	☐ Yes	☐ No	

Checklist 12: ***(cont'd)***
Requirements for alternative monitoring of batch processes

C.	**Recordkeeping and Reporting Requirements**			**Comments**
3.	Do your records demonstrate the proportion of time during the calendar year that the equipment is in use for a process or processes subject to subpart MMM? *§63.1363(g)(5)(ii)* *Note: Examples of suitable documentation are records of time in use for individual pieces of equipment or average time in use for the process unit.* *These records are only required for equipment for which you adjust the monitoring frequency.*	☐ Yes	☐ No	
4.	When any of the information in your notification of compliance status report regarding processes for which you comply with option 4 changed, did you include the revised information in your next periodic report? *§63.1363(h)(3)(iv)*	☐ Yes	☐ No	
5.	Do you keep all records for at least 5 years? *§63.1367(a)*	☐ Yes	☐ No	

What calculations are required by Subpart MMM?

Subpart MMM requires a variety of calculations to demonstrate compliance. The specific calculations that you must conduct depend on the design and operation of your affected source and the compliance options you choose. For example, you may be required to calculate any of the following five items:

Uncontrolled process vent emissions are used to determine if a process has Group 1 or Group 2 process vents.

- Uncontrolled emissions from individual process vents
- Flow-weighted average flowrate for “large” process vents
- Controlled emissions at the outlet of condensers that are control devices
- Supplemental gas correction for compliance with outlet concentration limits
- Difference between inlet and outlet concentrations of a substance in cooling water used in heat exchange systems

Examples of these five calculations are provided in this chapter and in cited references. The calculations of process vent emissions are based on the data for a fictional process provided in Table 7-1. These data are not intended to represent any particular process and are not necessarily even physically viable. The data were created only for the purpose of illustrating the types of calculations that may be required by Subpart MMM.

TABLE 7-1. Operational and Emissions Data for a PAI Process

Type of process vent	Emission event	Duration of emission event, min/batch	Amount of gas discharged per batch	HAP emissions, lb/batch		Total HAP emissions, lb/yr[a]
				methanol	methylene chloride	
Reactor	charging	15	200 gal displaced	0.034		21
	heatup	180	0.128 lbmole air[b]	0.097		58

TABLE 7-1. (cont'd)

Type of process vent	Emission event	Duration of emission event, min/batch	Amount of gas discharged per batch	HAP emissions, lb/batch		Total HAP emissions, lb/yr[a]
				methanol	methylene chloride	
Extraction	charge material from reactor	75	1,200 gal displaced	0.19		114
	charge extraction solvent	30	400 gal displaced	0.063	9.9	5,978
Holding tank for aqueous phase	charging	60	850 gal displaced	0.25	0.19	264
Crystallizer for organic phase	charging	45	700 gal displaced	0.2	9	5,520
Centrifuge for organic phase	charging	45	700 gal displaced	0.2	9	5,520
Dryer	air drying	180	3,000 scfm	20	180	120,000

[a] Annual emissions based on 600 batches per year.
[b] See example 7.4 for the calculation of this value.

How do I calculate uncontrolled process vent emissions?

Section 63.1365(c)(2) specifies equations to use to estimate uncontrolled emissions from 7 types of emission events. Examples illustrating the use of each of these equations are presented in "Methods for Estimating Air Emissions From Chemical Manufacturing Facilities." This document, currently in draft form, is chapter 16 of volume II in the Emission Inventory Improvement Program series, and it may be downloaded from EPA's CHIEF page at: *www.epa.gov/ttn/chief/eiip/techreport/index.html#review* (Look under Volumes and Chapters under review). Example calculations for displacement and heatup emission events for the process described in Table 7-1 are also presented below. Examples 7.1 and 7.2 calculate **vapor displacement** emissions from charging material to a vessel using Equation 9 to subpart MMM, which is written as follows:

$$E = \frac{V}{(R)(T)} \times \sum_{i=1}^{n} (P_i)(MW_i)$$

where:

E = mass of HAP emitted
V = volume of gas displaced from the vessel
R = ideal gas law constant
P_i = partial pressure of the individual HAP
n = number of HAP compounds in the emission stream
MW_i = molecular weight of individual HAP in the emission stream

Section 63.1365(c)(2)(i)(D) in Subpart MMM specifies two alternative procedures for estimating emissions from **heating** the contents of a vessel to temperatures less than the boiling point. One approach uses the procedures and equations described in §63.1365(c)(2)(i)(D)(*1*) and (*2*) of Subpart MMM. The second approach is specified in §63.1365(c)(2)(i)(D)(4) and uses equations 15 through 17 in §63.1365(c)(2)(i)(D)(*4*) and equation 14 in §63.1365(c)(2)(i)(D)(*1*), which are written as follows:

Note that equations 14 through 17 in Subpart MMM are written for situations where HAP are the only volatile components in the vessel. If other compounds are also volatile (e.g., water), then the partial pressure terms in the equations must include those compounds as well as the HAP. Example 7.3 in this chapter (see page 7-6) illustrates how to use the second approach in such a situation.

$$E = MW_{HAP} \times \left(N_{avg} \times \ln\left(\frac{P_T - \sum_{i=1}^{n} P_{i,1}}{P_T - \sum_{i=1}^{n} P_{i,2}} \right) - (n_{HAP,2} - n_{HAP,1}) \right)$$

$$N_{avg} = \frac{(V)(P_T)}{2R} \times \left(\frac{1}{T_1} + \frac{1}{T_2} \right)$$

$$(n_{HAP,2} - n_{HAP,1}) = \frac{V}{(R)(T_2)} \times \sum_{i=1}^{n} P_{i,2} - \frac{V}{(R)(T_1)} \times \sum_{i=1}^{n} P_{i,1}$$

$$MW_{HAP} = \frac{\sum_{i=1}^{n} \left\{ \left[\left(P_i\right)_{T1} + \left(P_i\right)_{T2} \right] \times MW_i \right\}}{\sum_{i=1}^{n} \left[\left(P_i\right)_{T1} + \left(P_i\right)_{T2} \right]}$$

where:

E = mass of HAP emitted
MW_{HAP} = average molecular weight of HAP compounds
N_{avg} = average gas space molar volume during the heating process
P_T = total pressure in the vessel

$P_{i,1}$ = partial pressure of individual HAP compounds at T_1
$P_{i,2}$ = partial pressure of individual HAP compounds at T_2
$n_{HAP,1}$ = number of moles of total HAP in the vessel headspace at T_1
$n_{HAP,2}$ = number of moles of total HAP in the vessel headspace at T_2
V = volume of free space in the vessel
R = ideal gas law constant
T_1 = initial temperature of the vessel contents, absolute
T_2 = final temperature of the vessel contents, absolute
n = number of HAP compounds in the emission stream

Example 7.1: Displacement emissions (one liquid phase)

Table 7-1 indicates that 200 gallons of methanol are charged to the reactor. The following data and assumptions were used in estimating the methanol emissions from this event:

- Assume 800 gal of water (370 lbmole) and 200 gal of non-HAP organic compounds (20 lbmole) are added before the 200 gal (40 lbmole) of methanol. Therefore, the methanol mole fraction is 0.095 when the charging is complete.

- Temperature of the reactor contents is 25°C.

- Assume vapor space is in equilibrium with the final liquid mixture for the entire time methanol is being charged.

- Vapor pressure of methanol at 25°C is 125 mmHg.

- Estimate partial pressure of methanol using Raoult's law and the final composition of material in the reactor as follows:

$$\begin{aligned} P_{methanol} &= (x_{methanol})(Methanol\ vapor\ \ pressure) \\ &= (0.095)(125\, mmHg) \\ &= 11.9\ mmHg \end{aligned}$$

- Estimate methanol emissions using Equation 9 in Subpart MMM as follows:

$$\begin{aligned} E &= \frac{(200 gal)(\, ft^3\ /\ 7.48\, gal)(11.9\, mmHg)(32\, lb\ /\ lbmole)}{(999\, ft^3 \cdot mmHg\ /\ lbmole \cdot K)(298\, K)} \\ &= 0.034\ lb\ /\ batch \end{aligned}$$

Example 7.2: Displacement emissions (two liquid phases)

Table 7-1 indicates that the reactor output and 400 gal of methylene chloride are charged to the extractor. The following data and assumptions are used to estimate the methylene chloride and methanol emissions while the methylene chloride is charged:

- Methylene chloride is charged after the material from the reactor has been charged.

- Assume contents of reactor are still at an elevated temperature of 37°C when the methylene chloride is added.

- Vapor pressure of methylene chloride at 37°C is 677 mmHg.

- Vapor pressure of methanol at 37°C is 228 mmHg.

- Since methylene chloride forms a separate phase, estimate HAP partial pressures assuming equilibrium between the vapor space and each phase separately

  ‣ for the methylene chloride phase, assume no material is extracted while methylene chloride is being added so that partial pressure of methylene chloride is the same as the pure component vapor pressure.

  ‣ for the water/methanol/other organic compounds phase, assume some of the methanol was consumed in the reactor so that the methanol mole fraction is now about 0.05. Using Raoult's law, the partial pressure of methanol is estimated to be about 11.4 mmHg.

- Estimate methylene chloride emissions using Equation 9 in Subpart MMM as follows:

$$E = \frac{(400\,gal)(ft^3 / 7.48\,gal)(677\,mmHg)(85\,lb / lbmole)}{(999\,ft^3 \cdot mmHg / lbmole \cdot K)(310\,K)}$$
$$= 9.9\ lb / batch$$

- Estimate methanol emissions using Equation 9 in subpart MMM as follows:

$$E = \frac{(400\,gal)(ft^3 / 7.48\,gal)(11.4\,mmHg)(32\,lb / lbmole)}{(999\,ft^3 \cdot mmHg / lbmole \cdot K)(310\,K)}$$
$$= 0.063\ lb / batch$$

Example 7.3: Heatup emissions

Table 7-1 indicates that the reactor contents are heated after all of the raw materials have been added, and heat is applied for 3 hours. The following additional data and assumptions are used to estimate the methanol emissions during this event:

See page 7-3 for equations 14 through 17 in Subpart MMM.

- The vessel contents are heated from 25°C to 37°C.
- The reactor headspace is 5,000 gallons.
- Vapor pressure, mole fraction, and partial pressure data:

	Initial conditions at T_1 (25°C)			Final conditions at T_2 (37°C)		
Condensable component	vapor pressure, mmHg	liquid mole fraction[a]	partial pressure, mmHg[b]	vapor pressure, mmHg	liquid mole fraction[c]	partial pressure, mmHg
water	24	0.858	20.3	47	0.858	40.3
methanol	125	0.095	11.9	228	0.095	21.7

[a] Assume the balance is other organic compounds that have negligible vapor pressure.
[b] Partial pressures calculated using Raoult's law.
[c] Assume the vessel contents reach 37°C before any significant reaction occurs so that the mole fractions at the initial and final temperatures are equal (the temperature is then maintained at 37°C until the reaction is complete).

- Estimate N_{avg} using equation 16 as follows:

$$N_{avg} = \frac{(5{,}000\,gal)(ft^3 / 7.48\,gal)(760\,mmHg)}{(2)(999\ ft^3 \cdot mmHg / lbmole \cdot K)} \times \left(\frac{1}{298\,K} + \frac{1}{310\,K} \right)$$
$$= 1.673\,lbmole$$

- Estimate $(n_{HAP,2}-n_{HAP,1})$ using equation 17 as follows:

$$(n_{HAP,2} - n_{HAP,1}) = \frac{(5{,}000\,gal)(ft^3 / 7.48\,gal)}{(999\,ft^3 \cdot mmHg / lbmole \cdot K)(310\,K)} \times (40.3\,mmHg + 21.7\,mmHg)$$
$$- \frac{(5{,}000\,gal)(ft^3 / 7.48\,gal)}{(999\ ft^3 \cdot mmHg / lbmole \cdot K)(298\,K)} \times (20.3\,mmHg + 11.9\,mmHg)$$
$$= 0.0617\,lbmole$$

- Estimate MW_{HAP} using equation 14 as follows:

$$
\begin{aligned}
MW_{HAP} &= \frac{(11.9 + 21.7)(32\,lb/lbmole) + (20.3 + 40.3)(18\,lb/lbmole)}{(11.9 + 21.7) + (20.3 + 40.3)} \\
&= 23\,lb/lbmole
\end{aligned}
$$

- Estimate emissions of all condensable compounds using equation 14 (without MW_{HAP}) as follows:

$$
\begin{aligned}
E &= \left(1.673\,lbmole \times \ln\left(\frac{760\,mmHg - (20.3\,mmHg + 11.9\,mmHg)}{760\,mmHg - (40.3\,mmHg + 21.7\,mmHg)}\right) - 0.0617\,lbmole\right) \\
&= 0.00846\,lbmole\;condensable\;components/event
\end{aligned}
$$

- If all of the condensable compounds were HAP, we could multiply the total lbmoles emitted by MW_{HAP} to estimate the total mass of HAP emitted. For this example, however, only one condensable component (methanol) is HAP. Therefore, we can use the average of the initial and final partial pressures to determine the fraction of the emissions that is methanol. The average water partial pressure is 30.3 mmHg, and the average methanol partial pressure is 16.8 mmHg. Therefore, 64 percent of the total lbmoles emitted is water and 36 percent is methanol. The total mass of methanol emitted is then estimated as follows:

$$
\begin{aligned}
E &= (0.00846\,total\;lbmole)(0.36)(32\,lb/lbmole) \\
&= 0.097\,lb\;methanol\;emitted\;/\;batch
\end{aligned}
$$

How do I determine if process vents are Group 1 or Group 2?

According to the definition of “Group 1 process vent” in §63.1361 of Subpart MMM, all of the process vents in a process are Group 1 if the sum of the organic HAP emissions from all process vents is at least 0.15 Mg/yr (330 lb/yr) and/or the sum of the HCl and Cl_2 emissions is at least 6.8 Mg/yr (15,000 lb/yr). For the example process described by the data in Table 7-1, the emission streams from each unit operation are process vents because their HAP concentrations are greater than 50 ppmv (see definition of process vent in §63.1361). All of these process vents also are Group 1 process vents because the total annual emissions of organic HAP are well above 0.15 Mg/yr.

> *Note: Although the process itself generates no HCl or Cl_2, if the methylene chloride emissions are controlled using an incinerator, you would need to determine the amount of HCl generated by burning the methylene chloride. If that amount (plus any from the process itself) exceeds 6.8 Mg/yr, which it would for the dryer emissions in the example*

process, then you would have to meet the control requirements for HCl and Cl_2 in §63.1362 of Subpart MMM.

How do I calculate the flow-weighted average flowrate for "large" process vents?

At existing sources, process vents that meet certain criteria are subject to more stringent control requirements than other process vents (see "What compliance options do I have for my Group 1 process vents?" on page 3-3). To determine which process vents are subject to the more stringent control requirement, Subpart MMM requires you to calculate the flow-weighted average flowrate of process vents using equation 1 in §63.1362(b)(2). If this value is less than or equal to the flowrate calculated using equation 2 in §63.1362(b)(2), then you must reduce organic HAP emissions from the process vent by 98 percent. In practice, the calculation is only required for vents with uncontrolled organic HAP emissions that exceed 50,000 lb/yr because the flowrate calculated using equation 2 is only realistic (i.e., a positive value) for higher emission rates. Equations 1 and 2 are written as follows:

$$FR_a = \frac{\sum_{i=1}^{n} (D_i)(FR_i)}{\sum_{i=1}^{n} D_i} \qquad \text{Eq.1}$$

$$FR = 0.02 \times (HL) - 1{,}000 \qquad \text{Eq. 2}$$

where:

FR_a = flow-weighted average flowrate for the vent, scfm
D_i = duration of each emission event, min
FR_i = flowrate of each emission event, scfm
n = number of emission events
FR = calculated flowrate, scfm
HL = annual uncontrolled organic HAP emissions, lb/yr, as defined in §63.1361

For the example process in Table 1, only the dryer vent has uncontrolled organic HAP emissions that exceed 50,000 lb/yr. Since there is only one emission event associated with this vent, the flow-weighted average flowrate for the vent is simply the actual flowrate out of the dryer, or 3,000 scfm. The next step is to compare this value to the flowrate calculated using equation 2 as follows:

$$\begin{aligned} FR &= (0.02)(HL) - 1{,}000 \\ &= (0.02)(120{,}000\, lb/yr) - 1{,}000 \\ &= 1{,}400\, scfm \end{aligned}$$

Since the actual flowrate (3,000 scfm) is greater than the value calculated using equation 2, the dryer vent is not a “large” vent and is not subject to the 98 percent control requirement.

The equation 1 calculation would be more complicated if the process vent consists of numerous types of emission events. For example, the reactor process vent in Table 7-1 consists of two emission events. Similarly, if vents from multiple vessels are connected to a common manifold for discharge from a single point, then the collective emission stream is the process vent. For example, if the emissions from the extraction vessel and crystallizer in Table 7-1 are combined, then the process vent consists of the combined stream. In both of these scenarios for the process in Table 7-1 there would be no need to calculate the flow-weighted average flowrates because we know the total uncontrolled emissions are less than 50,000 lb/yr. However, the following calculation for the reactor vent in Table 7-1 is presented to illustrate the procedure for using equation 1:

$$
\begin{aligned}
FR_a &= \frac{\sum_{i=1}^{n} (D_i)(FR_i)}{D_i} \\
&= \frac{(15\,\text{min})(1.78\,scfm) + (180\,\text{min})(0.3\,scfm)}{15\,\text{min} + 180\,\text{min}} \\
&= 0.41\,scfm
\end{aligned}
$$

Note: In this calculation, the 200 gallons displaced during charging is equal 26.7 ft^{3}, or an average flowrate of 1.78 scfm over the 15-minute charging period. Also, the 0.128 lbmole of air displaced as the reactor contents are heated is equal to 50 standard cubic feet. For saturated conditions at the final reactor temperature, the partial pressures of water and methanol in the reactor are 40.3 mmHg and 21.7 mmHg, respectively. Thus, the total amount of displaced gas is 54 standard cubic feet. Over the 180 minutes that the reactor is heated, the average discharge rate is about 0.3 scfm.

How do I calculate controlled emissions out of a condenser?

Section 63.1365(c)(3)(iii) of Subpart MMM describes procedures and equations to calculate controlled emissions at the outlet of a condenser. For example, use equations 29 and 12 in Subpart MMM to calculate emissions from a condenser used to control emissions from a heatup event. Equations 29 and 12 read as follows:

$$
E = \Delta\,\eta \times \frac{\sum_{i=1}^{n} P_i}{P_T - \sum_{j=1}^{m} P_j} \times MW_{HAP} \qquad \text{Eq. 29}
$$

$$\Delta\, \eta = \frac{V}{R}\left[\left(\frac{P_{a1}}{T_1}\right) - \left(\frac{P_{a2}}{T_2}\right)\right] \qquad \text{Eq. 12}$$

where:

- E = mass of HAP emitted
- $\Delta\eta$ = moles of noncondensable gas displaced
- P_T = pressure in the receiver
- P_i = partial pressure of the individual HAP at the receiver temperature
- P_j = partial pressure of the individual condensable compounds at the receiver temperature
- n = number of HAP compounds in the emission stream
- V = volume of free space in the vessel
- R = ideal gas law constant
- P_{a1} = initial noncondensable gas pressure in the vessel
- P_{a2} = final noncondensable gas pressure in the vessel
- T_1 = initial temperature of vessel contents (absolute)
- T_2 = final temperature of vessel contents (absolute)

Example 7.4: Condenser-controlled reactor heatup emissions

Suppose emissions during heatup of the reactor in Table 7-1 are routed to a condenser that is operated at 10°C. The following data and assumptions were used in estimating the controlled methanol emissions for this emission event:

- The headspace volume of the reactor is 5,000 gal.

- Example 7.3 presents partial pressures at the initial and final reactor temperatures. Use these values in equation 12 to calculate $\Delta\eta$ as follows:

$$\Delta\, \eta = \frac{(5{,}000\, gal)(\, ft^3 \,/\, 7.48\, gal)}{999\ ft^3 \cdot mmHg \,/\, lbmole \cdot K} \times$$
$$\left[\left(\frac{760 - 20.3 - 11.9\, mmHg)}{298\, K}\right) - \left(\frac{760 - 40.3 - 21.7\, mmHg}{310\, K}\right)\right]$$
$$= 0.128\ lbmole\ air$$

- The water and methanol vapor pressures at the condenser receiver temperature of 10°C are 9 mmHg and 54 mmHg, respectively.

- Assuming the methanol and water are the only components in the receiver and they are present in the same ratio as in the reactor during heatup (i.e., 90 percent water and 10 percent methanol), then water and methanol partial pressures for the receiver are 8.2 mmHg and 5.4 mmHg, respectively.

- Calculate the methanol emissions using equation 29 as follows (note that since methanol is the only HAP, P_i and MW_{HAP} simplify to the applicable values for methanol):

$$
\begin{aligned}
E &= 0.128 \times \frac{5..4}{760 - (8.2 + 5.4)} \times 32 \\
&= 0.03\, lb\, methanol / batch
\end{aligned}
$$

How do I correct concentration measurements to account for supplemental gases?

If you elect to comply with an outlet concentration limit for process vents or storage tanks, you may have to adjust the measured concentration to account for dilution caused by combination of the affected vent streams with other gas streams (i.e., "supplemental gases") that are not subject to control. See the discussion for options 2, 4, 7, and 8 in the section "How do I show initial compliance with the process vent requirements?" beginning on page 3-8 for the definition of "supplemental gases" and the compliance requirements. The specific correction methodology depends on whether the control device is a combustion device or a noncombustion device.

If you comply with the alternative standard (Option 4 or 8 in chapter 3), then you have alternatives to the supplemental gas correction. See "How do I monitor to comply with the alternative standard?" on page 3-18 for more information..

For combustion devices, you must correct the measured concentration to 3 percent oxygen using equation 7 in §63.1365(a)(7)(i) to Subpart MMM as follows:

$$
C_c = C_m \left(\frac{17.9}{20.9 - \%O_{2d}} \right) \qquad \text{Eq.7}
$$

where:

C_c = concentration of TOC, total organic HAP, or total HCl and chlorine corrected to 3 percent oxygen, dry basis, ppmv

C_m = total; concentration of TOC, total organic HAP, or total HCl and chlorine in the vented gas stream, average of samples, dry basis, ppmv

$\%O_{2d}$ = concentration of oxygen measured in vented gas stream, dry basis, percent by volume

For noncombustion devices, correct the measured concentration to account only for the specific amount of supplemental gases add using equation 8 in §63.1365(a)(7)(ii) to Subpart MMM as follows:

$$C_a = C_m \left(\frac{V_s + V_a}{V_a} \right) \qquad \text{Eq. 8}$$

where:

- C_a = corrected outlet TOC, total organic HAP, or total HCl and chlorine concentration, dry basis, ppmv
- C_m = actual TOC, total organic HAP, or total HCl and chlorine concentration measured at the control device outlet, dry basis, ppmv
- V_a = total volumetric flow rate of affected streams vented to the control device
- V_s = total volumetric flow rate of supplemental gases

Example 7.5: Supplemental gas correction for combustion device

Suppose that some of the process vents in Table 7-1 are controlled using a thermal incinerator and you plan to comply with the 20 ppmv outlet concentration limit (Option 2 in chapter 3). You must conduct a performance test to demonstrate compliance with the concentration limit. The test is conducted under the absolute peak-case condition, which is determined to be the maximum 1-hr loading to the incinerator. Since your system design includes the introduction of a small amount of supplemental air under these conditions, you also measure the oxygen content of the outlet gas stream at the same time you measure the total organic HAP concentration (as specified in §63.1365(a)(7)(i)(C) of Subpart MMM). If you found the average of the measured organic HAP concentrations to be 8 ppmv, and the average O_2 concentration was 17 percent, would you be in compliance with the outlet concentration emission limit? Use equation 7 to Subpart MMM as follows:

$$C_c = 8 \times \left(\frac{17.9}{20.9 - 17} \right)$$
$$= 37\ ppmv$$

Therefore, the process vent would not be in compliance with the 20 ppmv outlet concentration limit.

Example 7.6: Supplemental gas correction for noncombustion device

Suppose the process vents in example 7.5 were routed to a noncombustion device. The average measured outlet concentration from the performance test is 13 ppmv, the average process vent flowrate is 2 scfm, and you measure the supplemental gases flow rate to be 0.4 scfm. Correct the measured concentration using equation 8 to Subpart MMM as follows:

$$C_a = 13 \times \left(\frac{2 + 0.4}{2} \right)$$
$$= 15.6\, ppmv$$

This system would be in compliance with the 20 ppmv outlet concentration limit.

How do I determine if I have a heat exchange system leak when complying with option HE1?

The section “What are my compliance options for heat exchange systems?” beginning on page 5-30 indicates that a leak is detected under option HE1 when the exit mean concentration is determined to be greater than the entrance mean concentration using a one-sided statistical test at the 0.05 level of significance, and the amount by which the exit is greater is at least 1 ppmw or at least 10 percent of the entrance concentration, whichever is greater.

Example 7.7: Checking heat exchange system for leaks

Suppose you have collected the following HAP concentration data for your heat exchange system (note that you must collect at least three sets of samples):

Sample number	Entrance concentration, ppmw	Exit concentration, ppmw
1	18	24
2	23	26
3	28	28
Mean	23	26

Step 1: The first step is to check the arithmetic difference between the entrance and exit means. In this example, the difference is 3 ppmw, which exceeds both of the criteria (1 ppmw and 10 percent of the entrance mean). Therefore, we must proceed to step 2 to determine if there is a statistically significant difference between the means.

Step 2: The second step is to determine if there is a statistical difference between the means at the 0.05 level of significance. In this example our null hypothesis is that the two means are equal. Since our sample size is small, we have an equal number of entrance and exit samples, and we are assuming the population is normally distributed, the statistical procedure to use is the T statistic for differences between means:

$$T = \frac{(\overline{X}_1 - \overline{X}_2) - d_o}{S_p \sqrt{(1/n_1) + (1/n_2)}} \quad and$$

$$\nu = n_1 + n_2 - 2 \quad and$$

$$S_p^2 = \frac{(n_1 - 1)(S_1^2) + (n_2 - 1)(S_2^2)}{n_1 + n_2 - 2} \quad and$$

$$S_i^2 = \frac{n\sum_{i=1}^{n} X_i^2 - \left(\sum_{i=1}^{n} X_i\right)}{n(n-1)}$$

where:

T = T statistic value
$\overline{X}_1$ = mean exit concentration of the sample
$\overline{X}_2$ = mean entrance concentration of the sample
d_o = difference between the means for the null hypothesis (zero in this case)
S_p = pooled sample standard deviation (square root of the pooled sample variance)
n_1 = number of exit samples
n_2 = number of entrance samples
ν = degrees of freedom
S_p^2 = pooled sample variance
S_i^2 = sample variances (i=1 for exit and i=2 for entrance)
X_i = individual entrance and exit sample concentrations

The entrance sample variance is:

$$S_{ent}^2 = \frac{(3)(18^2 + 23^2 + 28^2) - (18 + 23 + 28)^2}{(3)(3-1)}$$
$$= 25$$

The exit sample variance is:

$$S_{exit}^2 = \frac{(3)(24^2 + 26^2 + 28^2) - (24 + 26 + 28)^2}{(3)(3-1)}$$
$$= 4$$

The pooled sample variance is:

$$S_p^2 = \frac{(3-1)(25)+(3-1)(4)}{3+3-2}$$
$$= 14.5$$

The pooled standard deviation is the square root of the pooled sample variance, or 3.80.

The T statistic is then:

$$T = \frac{(26-23)-0}{(3.8)(1/3+1/3)^{0.5}}$$
$$= 0.965$$

In this example, we have 4 degrees of freedom. According to tabulated values of the T statistic, for 4 degrees of freedom and a 0.05 level of significance, the critical region is T>2.132. Since our calculated T is outside the critical region, we accept the null hypothesis and conclude that the exit and entrance means are not statistically different.

Since the means are not statistically different, the heat exchange system in this example does not have a leak under Subpart MMM.

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What records must I keep?

You will need to keep several types of records to document compliance with various requirements in the rule. Most of the records that you will need to keep are listed in Table 8-1 (page 8-4).

You must retain all records for at least 5 years. [§§63.10(b)(1) and 63.1367(a)(1)]

In addition to these records, you must also develop both of the following written plans and maintain the plans onsite:

- a startup, shutdown, and malfunction plan (SSMP) that describes procedures you will follow during such events and describes actions you will take to correct malfunctions [§63.1367(a)(3)]

You must keep superceded versions of the SSMP as well as the current version. [§§63.1367(a)(3) and 63.6(e)(3)(v)]

- a plan for inspecting all parts of a closed-vent system, cover, fixed-roof, or enclosure that you designate as either unsafe-to-inspect or difficult-to-inspect [§§63.1366(h)(6)(ii) and (7)(ii) and 63.1367(f)(1) and (2)]

If you use a fabric filter to comply with particulate matter emission limits for a bag dump or product dryer (see "What compliance options do I have for process vents that emit particulate matter?" on page 3-6 for applicability), then you must also develop and maintain the following plans:

- an operation and maintenance plan that describes proper operation and maintenance procedures for the fabric filter and bag leak detector.

- a corrective action plan that describes corrective actions to be taken (and the timing of those actions) when the particulate matter concentration exceeds the setpoint and activates the bag leak detector alarm.

If you are required to develop these plans, they must be submitted with your precompliance plan (see Table 8-4 on page 8-12 for information to include in your precompliance plan. [§63.1368(e)(6)]

If you comply with option HE2 for a heat exchange system, you must develop and maintain a monitoring plan (see page 5-32 for a description of the information to include in your monitoring plan).

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. Tables 8-2 and 8-3 (pages 8-10 and 8-11) show what reports you must submit and when they are due. Table 8-4 (page 8-12) gives you details about what should be included in these reports.

How can I change the date my reports are due?

Under the General Provisions, §63.10(a)(5), you may request a change in the date you submit your reports. You and your EPA Regional Office or State, local, or Tribal agency for air pollution control (from now on referred to as “State”) must mutually agree to the change, and the change can not affect the frequency that you report. For example, semiannual reports for an existing source are required in January and July of each year, beginning in 2005. You may request that these dates be changed to some other time frame, such as one that coincides with your title V operating permit notifications. This does not change your reporting frequency since you are still submitting your semiannual reports twice per year.

Changes to reporting dates can begin 1 year after the compliance date (that is, reports required after 12/23/04 can be changed). Reports due before 12/23/04 can not be changed and must be reported by the date shown in Table 8-2. Contact your State for more information.

Where do I send my reports?

The General Provisions §63.9(a) and §63.10(a) require you to submit reports to your State or your EPA Regional Office or both (dual reporting). Whom you send your reports to depends on whether your State has been granted the authority to implement the PAI Production NESHAP.

You will need to submit reports in **one** of the following ways:

- to your EPA Regional Office if your State has not been delegated the authority to implement and enforce the PAI Production NESHAP

- to you State with a copy to your EPA Regional Office, if your State has been granted delegation and we have not waived the dual reporting requirement

- to your State if it has been granted delegation and we have waived the dual reporting requirement

Not all State agencies have been granted delegation. Also, as of this publication, our Region I, III, VIII, and X offices have not waived the dual reporting requirement under §63.9 and §63.10.

This means if your facility is in one of the following Regions, you will need to submit your reports to your State, local, or Tribal agency and the EPA Regional Office:

- Region I (CT, ME, MA, NH, RI, VT)
- Region III (DE, MD, PA, VA, WV, District of Columbia)
- Region VIII (CO, MT, ND, SD, UT, WY)
- Region X (AK, ID, WA, OR)

You will find a list of our Regional Offices and their addresses in Chapter 10.

You should check with your EPA Regional Office or State for the latest information about submitting reports.

TABLE 8-1. Summary of Recordkeeping Requirements[a,b,c]

For each...	To comply with...	And for which...	You must keep records of all of the following...	According to this section of the rule...
Facility that is not subject to subpart MMM			The applicability determination	§§63.10(b)(3) and 63.1367(a)(2)
Facility that is subject to subpart MMM			A schedule or log of operating scenarios updated daily or, at a minimum, each time a different operating scenario is put into operation	§63.1367(b)(7)
		You develop process unit groups for processes that are subject to overlapping requirements with other rules	• a listing of the PAI and non-PAI process units used to establish the process unit group, and any subsequent additions to or deletions from the list • the operating time for each process unit used in a determination or redetermination of the primary product for the process unit group • each determination and redetermination of the primary product for the process unit group	§§63.1360(h)(1)(vi) and 63.1367(b)(9)
Process at a subject facility that produces a material that is a PAI and has other uses		The use as a PAI is not the primary use	• total production • fraction of the total production used as a PAI *(Note that these records must be kept semiannually or more frequently.)*	§63.1367(g)
Dedicated PAI process unit	the applicability determination required by §63.1360(b)(2)	construction commenced after 11/10/97 or reconstruction commenced after 9/20/02	number of turnovers for each storage tank that is assigned to the PAI process unit	§63.1367(b)(6)(vi)
Startup, shutdown, and malfunction event			• occurrence and duration of each malfunction of process operations or of air pollution control equipment • occurrence and duration of each malfunction of continuous monitoring systems • all information necessary to demonstrate that procedures specified in the SSMP were followed, or a description of actions taken that are not consistent with the SSMP	§63.1367(a)(3)(i) - (iii)

TABLE 8-1. (cont'd)

For each...	To comply with...	And for which...	You must keep records of all of the following...	According to this section of the rule...
PAI process			• results of initial calculation of uncontrolled and controlled organic HAP and HCl/Cl_2 emissions from process vents (note that these calculations are not required if the conditions in §63.1365(b)(11)(iii)(D)(1) or (2) are met) • the ongoing number of batches per year for a batch process • the ongoing number of operating hours for a continuous process • the ongoing number of batches and operating hours for a process with both batch operations and continuous operations • a description of absolute or hypothetical peak-case operating conditions under which performance testing of an APCD for batch process vents is conducted	§63.1367(b)(6)
PAI process with Group 2 process vents			The daily rolling annual calculation of uncontrolled organic HAP emissions	§§63.1366(c) and 63.1367(b)(4)
APCD used to meet a percent reduction or outlet concentration standard for storage tanks	Option 5A, 5B, 5C, or 5E		Each period of planned routine maintenance of the APCD	§63.1367(b)(6)
Storage tank for which you comply with the vapor balancing alternative	Option 4		• DOT certifications of vapor tightness of tank trucks and railcars that deliver material to the storage tank • the setting of the pressure relief vent on the storage tank • results of the quarterly leak detection monitoring of the pressure relief vent	§63.1367(b)(8)
Storage tank for which you use a floating roof to comply with the emission standards	Option 1, 2, or 3		• each inspection required by §63.120(a), (b), and (c), as applicable. (See "What monitoring must I do for my storage vessels?" in Chapter 4 for information on the frequency of inspections. Also note that when defects are detected during an inspection, information about the defect must be included in the periodic report, as described in Table 8-3.) • each seal gap measurement for external floating roofs (Option 2)	§§63.1367(b)(11) and 63.123(c) through (e)

TABLE 8-1. (cont'd)

For each...	To comply with...	And for which...	You must keep records of all of the following...	According to this section of the rule...
Wastewater stream			• HAP concentrations • flowrate	§63.1367(b)(6)
APCD used to comply with an emission standard	All options for PV; options 5A, 5B, 5C, or 5E for ST; and options A1, A2, A3, or A4 for WW		All maintenance performed on the APCD	§63.1367(b)(10)
		You monitor an operating parameter	Each measurement of the APCD operating parameter *(Note: see the section "What records must I keep for my process vents?" in Chapter 3 and Table 5-5 in Chapter 5 for parameters that must be recorded for certain APCD)*	§63.1367(b)(1)
Treatment unit used to comply with a wastewater emission standard	All treatment options		See Table 5-5 in Chapter 5	§63.1367(b)(1)
Emission suppression technique for wastewater streams	All emission suppression options		See Table 5-5 in Chapter 5	§§63.147 and 63.1362(d)

TABLE 8-1. (cont'd)

For each...	To comply with...	And for which...	You must keep records of all of the following...	According to this section of the rule...
CEMS used to comply with the alternative standard for process vents and/or storage tanks	Option 4 or option 8 for PV; option 5E for ST		• calibration checks • maintenance of the CEMS • all of the following information required by §63.10(c)(1) through (14): ▸ all required CEMS measurements, including data recorded during periods of unavoidable CEMS breakdowns and out-of-control periods ▸ date and time of each period when the CEMS was inoperative, except for zero (low-level) and high-level checks ▸ date and time of each period when the CEMS was out of control (e.g., calibration drift exceeded specification or CEMS failed cylinder gas audit) ▸ date, start time, and end time of each period of excess emissions and parameter monitoring exceedances, including identification of those during periods of startup, shutdown, and malfunction. ▸ the nature and cause of any malfunction, if known, and any corrective actions taken ▸ the nature of any repairs or adjustments to a CEMS that was inoperative or out of control ▸ the total process operating time during the reporting period ▸ all procedures, including calibrations, that are part of your quality control program	§63.1367(a)(4) and (b)(3)
Bag leak detector used to monitor particulate HAP emissions from a fabric filter	Option 11 for PV		• date and time of each bag leak detection alarm • brief explanation of the cause of the alarm • description of corrective action taken	§63.1367(b)(5)

TABLE 8-1. (cont'd)

For each...	To comply with...	And for which...	You must keep records of all of the following...	According to this section of the rule...
Inspection of a closed-vent system, cover, fixed-roof, or enclosure	All options for PV; options 5A, 5B, 5C, or 5E for ST; and options A1, A2, A3, A4, and all emission suppression options for WW	a leak was detected	• identification of the leaking equipment • instrument identification number and operator name (if the leak was detected using Method 21), or an indication that the leak was detected by sensory observations • date the leak was detected • date of the first attempt to repair the leak • maximum instrument reading measured using Method 21 after the leak is repaired or determined to be nonrepairable • all of the following if the leak is not repaired within 15 days after the leak was discovered ‣ reason for the delay in repair ‣ name, initials, or other identification of the person who decided repair cannot be made without a shutdown ‣ expected date of successful repair • dates of shutdowns that occur while the equipment is unrepaired • date of successful repair of the leak	§63.1367(f)(4)
		no leak was discovered	• date of the inspection • statement that no leaks were detected	§63.1367(f)(5) and (6)
Closed-vent system, fixed-roof, cover, or enclosure with equipment that you designate as unsafe- or difficult-to-inspect	All options for PV; options 5A, 5B, 5C, or 5E for ST; and options A1, A2, A3, A4, and all emission suppression options for WW		• identification of all parts of the equipment that you designate as unsafe- or difficult-to-inspect • explanation of why the equipment is unsafe- or difficult-to-inspect	§63.1367(f)(1) and (2)

TABLE 8-1. (cont'd)

For each...	To comply with...	And for which...	You must keep records of all of the following...	According to this section of the rule...
Closed-vent system or vapor collection system that contains a bypass line that could divert a vent stream away from an APCD	All options for PV; options 5A, 5B, 5C, or 5E for ST; and options A1, A2, A3, and A4 for WW	You use a flow indicator in the bypass line	• hourly flow indicator records • times and durations of each period when the vent stream is diverted • times and durations of each period when the flow indicator was not operating	§63.1367(f)(3)(i)
		You use a seal mechanism to prevent diversion	• occurrence of the monthly inspection of the seal or closure mechanism • occurrence of each period 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 • each time a car-seal has been broken	§63.1367(f)(3)(ii)
LDAR program for equipment leaks			The records as specified in Table 6-2	§§63.1363(g) and 63.1367(c)

[a] Note that all records must be retained for at least 5 years. [§63.1367(a)(1)]
[b] The section "What provisions are described in this document?" on page 1-1 indicates that this document does not describe the requirements of the emissions averaging and pollution prevention compliance options. Therefore, the recordkeeping associated with those options is not included in this table.
[c] If you have a new affected source, §63.1367(a)(5) requires you to comply with the application for approval of construction or reconstruction provisions in §63.5 of the General Provisions. This requirement is not highlighted in this table because it, like all of the requirements in the General Provisions, is discussed in Chapter 9 of this document.

TABLE 8-2. Report Due Dates for Existing Affected Sources[a]

If you need to submit a(n) . . .	Then submit the report before . . .	According to this section of the rule...
Initial Notification Report	**10/23/99** *(120 days after the effective date)*	§63.1368(b)
Application for Approval of Construction or Reconstruction if reconstructing <u>after</u> **6/23/02** *(effective date)*	As soon as practicable before reconstruction is to commence	§§63.1368(c) and 63.5(d)
Precompliance Plan	**6/23/03** *(6 months before the compliance date)*	§63.1368(e)
Compliance Extension Request	**8/25/03** *(120 days before the compliance date)*	§§63.1368(n) and 63.1364(a)(2)
Notification of continuous monitoring system performance evaluation	At least 60 days before the performance evaluation, or with the notification of the performance test	§63.1368(d)
Notification of Performance Test and Test Plan	*60 days before the test*	§63.1368(m)
Notification of Compliance Status Report	**5/21/04** *(150 days after the compliance date)*	§63.1368(f)
Initial Semi-annual Periodic Report *Note: Quarterly reporting is required if you comply with the alternative standard and you have excess emissions [§63.1368(g)(1)(ii)]*	**1/17/05** (include information from 5/21/04 - 11/20/04) *(240 days after the Notification of Compliance Status Report)*	§63.1368(g) and (l)
Subsequent Semi-annual Periodic Reports	**January 17 and July 17** of every year *(60 days after each 6-month reporting period)*	§63.1368(g) and (l)
Startup, Shutdown, and Malfunction Reports	Semi-annually – can submit with the periodic reports	§63.1368(i)
Equipment Leak Reports	Semi-annually – submit with the periodic reports	§63.1368(j)
Notification of Process Change	Semiannually – submit with the next periodic report, except reports are due at least 60 days before either of the following: • any change in an activity described in the precompliance report, or • any change in status of a control device from small to large	§63.1368(h)

[a] Note that the first semiannual reporting period begins on the date the notification of compliance status report is due.

TABLE 8-3. Report Due Dates for New Affected Sources[a]

If you need to submit a(n) . . .	Then submit the report before . . .	According to this section of the rule...
Initial Notification Report	120 days after initial startup, or with the application for approval of construction or reconstruction	§63.1368(b)
Application for Approval of Construction or Reconstruction	As soon as practicable before the construction or reconstruction is planned to commence	§§63.1368(c) and 63.5(d)
Precompliance plan	At least 6 months before the compliance date	§63.1368(e)
Notification of continuous monitoring system performance evaluation	At least 60 days before the performance evaluation is scheduled to begin, or with the notification of performance test	§63.1368(d)
Notification of Performance Test and Test Plan	At least 60 days before the test	§63.1368(m)
Notification of Compliance Status Report	150 days after the compliance date	§63.1368(f)
Initial Semi-annual Periodic Report[b] *Note: Quarterly reporting is required if you comply with the alternative standard and you have excess emissions [§63.1368(g)(1)(ii)]*	240 days after the notification of compliance status report is due	§63.1368(g) and (l)
Subsequent Semi-annual Periodic Reports[b]	semiannually–60 days after the end of the applicable semiannual reporting period	§63.1368(g) and (l)
Startup, Shutdown, and Malfunction Reports	Semiannually–can be submitted with the periodic reports, except an immediate report is required if you take an action that is inconsistent with your SSMP	§63.1368(i)
Equipment Leak Reports	Semiannually–submit with the periodic reports	§63.1368(j)
Notification of Process Change	Semiannually–submit with the next periodic report, except reports are due at least 60 days before scheduled implementation of either of the following: • any change in an activity described in the precompliance report, or • any change in status of a control device from small to large	§63.1368(h)

[a] Note that Subpart MMM also includes reporting requirements for the emissions averaging option that are not described in this document. [§63.1368(k)]
[b] Note that the first semiannual reporting period begins on the date the notification of compliance status report is due.

TABLE 8-4. Reporting Requirements[a]

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
Request for Compliance Extension (existing source)	120 days before the compliance date *Note that you may submit a request after this date if a need arose after this date and the need arose due to circumstances beyond your reasonable control* *If you installed BACT or technology required to meet LAER before June 23, 1999, then you may submit the request not later than October 21, 1999*	Description of the controls to be installed to comply with Subpart MMM Compliance schedule, including dates by which each step towards compliance will be achieved, including at a minimum: • Date by which contracts for emission control systems or process changes for emission control will be awarded, or the date by which orders will be issued for the purchase of component parts to accomplish emission control or process changes, • Date by which on-site construction, installation of emission control equipment, or a process change will be initiated, • Date by which on-site construction, installation of emission control equipment, or a process change is to be completed, and • Date by which final compliance is to be achieved Description of interim emission control steps that will be taken during the extension period, including milestones to assure proper operation and maintenance of emission control and process equipment Statement indicating whether you are requesting an extension of other applicable requirements (e.g., performance testing requirements) If you installed BACT or technology to meet LAER, include all information needed to demonstrate to the Administrator's satisfaction that these controls apply to the HAP that must be controlled under Subpart MMM	§§63.1364(a)(2), 63.1368(n), and 63.6(i)(6)

TABLE 8-4. (cont'd)

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
Initial Notification Report[b]	120 days after the effective date or 120 days after rule applies to your facility	Your name and address. Address (physical location) of your facility. Identification of the relevant standard (i.e., 40 CFR part 63, Subpart MMM and your compliance date. Brief description of nature, size, design, and method of operation. Identify each point of emission for each HAP. Statement of whether you are a major or area source.	§63.1368(b); §63.9(b)
Application for Approval of Construction or Reconstruction	Before construction or reconstruction	Your name and address. Notification of your intent to construct or reconstruct. Address (physical location) of your facility. Identify the standard you are subject to (i.e., 40 CFR part 63, Subpart MMM). Date that you expect to start construction or reconstruction. Date that you expect to finish construction or reconstruction. Anticipated date of initial startup. Type and amount of HAP you are emitting or expect to emit. For construction: description of proposed nature, size, design, method of operation and emission controls and other information under *§63.5(d)(2)*. For reconstruction: brief description of the facility, parts to be replaced and emission controls and other information under *§63.5(d)(3)*.	§63.1368(c); §63.5(d)

TABLE 8-4. (cont'd)

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
Precompliance Plan	3 months before compliance data	Requests for approval to use alternative monitoring parameters. Description of your daily or per batch demonstrations to verify that control devices with inlet HAP emissions <1 ton/yr are operating as designed. Data and rationale used to set monitoring parameter levels for conditions other than the peak case. Your pollution prevention demonstration summary. Data and rationale for engineering assessments. Your operation and maintenance plan and corrective action plan for fabric filters that are monitored with bag leak detectors.	§63.1368(e)
Notification of performance test and test plan	At least 60 days before the test	Notification of your intent to conduct a performance test. Your test plan, including all of the following: • summary of the test program, • the test schedule, • data quality objectives (i.e., pretest expectations of precision, accuracy, and completeness of data), • internal quality assurance (QA) program, including at a minimum, the activities planned by routine operators and analysts to assess test data precision (e.g., sampling and analysis of replicate samples), and • external QA program, including at a minimum, application of plans for a test method performance audit during the performance test (i.e., analysis of blind audit samples provided by the Administrator in order to provide a measure of test data bias); the external QA program may also include systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.	§§63.1368(m) and 63.7(c)

TABLE 8-4. (cont'd)

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
		Your emission profile (required by §63.1365(b)(11)(iii))	
Notification of Compliance Status Report	150 days after the compliance date	Results of applicability determinations Results of emission profiles, performance tests, engineering analyses, design evaluations or other calculations used to demonstrate compliance Anticipated periods of planned routine maintenance for control devices used to comply with Option 5A, B, C, or E for storage tanks Information for processes subject to the equipment leak provisions as described in "What reports must I submit" in Chapter 6. Descriptions of monitor devices, monitoring frequencies, and the values of monitored parameters (and all supporting data and calculations) established during the initial compliance determination. Operating scenarios; i.e., all of the following for each PAI process unit: • identification of each process vent and wastewater POD, • emission episodes and their durations for each process vent, • level of control and control devices, • calculations and engineering analyses required to demonstrate compliance • description of operating and/or testing conditions for any control devices Descriptions of absolute or hypothetical peak-case operating and/or testing conditions for control devices Identification of emission points subject to overlapping requirements with other rules, and the authority under which you will comply.	§63.1368(f)

TABLE 8-4. (cont'd)

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
		Identification of emission points that discharge to exempt RCRA units. Percentage of total production from a PAI process unit that is anticipated to be produced for use as a PAI in the 3 years after either June 23, 1999, or startup, whichever is later. Records of the initial process units used to create each PUG.	
Semi-annual Periodic Reports	Semi-annually no later than 60 days after the end of the 6-month reporting period	Your company name and address. Identification of each HAP that you monitor at your affected source. Beginning and ending dates of the reporting period. Brief description of the PAI process units. Applicable emission and operating parameter limitations specified in Subpart MMM. Monitoring equipment manufacturer(s) and model numbers. Date of the latest CMS audit. Total operating time of your affected source during the reporting period. Summary of emissions data or operating parameter data (depending on which you monitor) including all of the following: • total duration of excess emissions during the reporting period, • total duration of excess emissions expressed as a percent of the total operating time during the reporting period, • breakdown of the total duration of excess emissions during the reporting period into those that are due to startup/shutdown, control equipment problems, process problems, other known causes, and other unknown causes.	§§63.1368(g)(2) and (l) and 63.10(e)(3)(vi)(A) through (M)

TABLE 8-4. (cont'd)

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
		CMS performance summary including all of the following: • total CMS downtime during the reporting period, • total duration of CMS downtime expressed as a percent of the total source operating time during the reporting period, • breakdown of total CMS downtime during the reporting period that is due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes. Description of any changes to any of the following since the last reporting period: • CMS • processes • controls The percentage of the total production in the reporting period used as a PAI if the primary use of the material is not as a PAI All of the following if the length of time for exceedances, excursions, and/or CEMS downtime exceeded limits specified in §63.1368(g)(2)(ii): • all monitoring data for the day(s) in question • duration of excursion • operating logs for days when parameter averages are outside the levels stated in the notification of compliance status report • the following information required by §63.10(c)(5) through (13) if you use a CEMS: ‣ date and time of each period when the CEMS was inoperative, except for zero (low-level) and high-level checks,	

TABLE 8-4. (cont'd)

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
		▸ date and time of each period when the CEMS was out of control (e.g., calibration drift exceeded specification or CEMS failed cylinder gas audit, ▸ date, start time, and end time of each period of excess emissions and parameter monitoring exceedances, including identification of those during periods of startup, shutdown, and malfunction, ▸ the nature and cause of any malfunction of the monitor, if known, and any corrective actions taken, ▸ the nature of any repairs or adjustments to a CEMS that was inoperative or out of control, and ▸ the total process operating time during the reporting period.	
		The information listed in Table 5-7 for wastewater systems and heat exchange systems	
		If a bypass line is equipped with a flow indicator, records of all periods when a vent stream is diverted to the bypass line instead of an APCD.	
		If you use a seal mechanism to prevent diversion of a vent stream through a bypass line instead of an APCD, 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.	
		Statements documenting all of the following as applicable: • no excess emissions • no exceedances of a parameter • no excursions • no CEMS were inoperative, out-of-control, repaired, or adjusted.	

TABLE 8-4. (cont'd)

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
		Both of the following if you control emissions from storage tanks using an APCD (Option 5A, 5B, 5C, or 5E): • actual periods of planned routine maintenance of the APCD during the subject reporting period, and • anticipated periods of planned routine maintenance of the APCD during the next reporting period. Information specified in §63.122(d) through (f) for storage tanks equipped with floating roofs, as applicable. Records specified in Table 8-1 for each inspection of a closed-vent system, cover, fixed-roof, or enclosure during which a leak was detected. Both of the following for each process unit group: • records of any process units added to the process unit group, and • results of any redetermination of the primary product. Updates to the corrective action plan for any bag leak detection system required by §63.1366(b)(1)(xi). Name, title, and signature of the responsible official who is certifying the accuracy of the report. Date of the report.	
Startup, Shutdown, and Malfunction Reports	Semi-annually–can submit with the periodic reports, except an immediate report is required when actions taken differ from procedures described in the SSMP	Startup, shutdown, and malfunction records as described in Table 8-1 Name, title, and signature of person who is certifying the accuracy of the report Each immediate report must also explain circumstances of the event for which procedures in the SSMP were not followed and indicate whether any excess emissions and/or parameter monitoring exceedances are believed to have occurred	§63.1368(i) and 63.10(d)(5)

TABLE 8-4. (cont'd)

If you are submitting a(n) . . .	Then submit by . . .	And include the following information, as applicable . . .	According to these sections of the rule . . .
Equipment Leak Reports	Semi-annually--submit with the periodic reports	See "What reports must I submit" in Chapter 6.	§§63.1363(h) and 63.1368(j)
Notification of Process Change	With the periodic report, except as noted in Table 8-2	Any of the following information, as applicable: • A brief description of the process change • A description of any modifications to standard procedures or quality assurance procedures • Revisions to any of the information reported in the original notification of compliance status report • Information required by the notification of compliance status report for changes involving the addition of processes or equipment	§63.1368(h)

[a] Note that Subpart MMM also includes reporting requirements for the emissions averaging option that are not described in this document [§63.1368(k) and (o)].
[b] If you have a new affected source that is subject to the special requirements under §63.6(b)(3) or (4), you must notify the Administrator of your compliance obligations under those sections by the due date of the initial notification report.

Who administers this regulation?

Your State or local agency for air pollution control, **or** your EPA Regional Office, will regulate you. If your facility 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 have been granted delegation of this rule.

> **Definition.** An *eligible Tribe* means "a Tribe that has been determined by the EPA to meet criteria for being treated in the same manner as a State, pursuant to the regulations implementing section 301(d)(2) of the Act."

Not all States have been granted delegation, or, if they have been granted delegation, they may not have been delegated all portions of the rule. Our EPA Regional Offices may also have retained certain rights even after delegation (for example, you may continue to have dual reporting requirements as explained in **Chapter 8)**.

The EPA has not delegated authority to approve any of the following: [§63.1369(c)]

- alternatives to the applicability requirements in §63.1360, standards in §§63.1362 and 63.1363, and compliance dates in §63.1364

  Note: Where these sections of Subpart MMM reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart. This includes cited provisions that are modified by provisions in Subpart MMM.

- major alternatives to any of the test methods required by Subpart MMM, in accordance with §63.7(e)(2)(ii) and (f)
- major alternatives to any of the monitoring required by Subpart MMM, in accordance with §63.8(f)
- major alternatives to any of the recordkeeping and reporting required by Subpart MMM, in accordance with §63.10(f)

> *Major alternatives to test methods, monitoring, and recordkeeping and reporting requirements are defined in §63.90.*

You should check with your EPA Regional Office or State for the latest information.

Do I need a title V permit?

You will need a title V permit if you are 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 will need to calculate your HAP emissions from your entire facility, not just your PAI production operations. If you do not have federally enforceable limits in a State permit, you must calculate your emissions by determining your potential emissions. If you need help determining if your facility is a major source or what your potential emissions are, see the definitions in the Operating Permits Rule §70.2, **or** visit our title V policy and guidance page at *www.epa.gov/ttn/oarpg/t5main.html*.

How do I change my permit to include this rule?

If you have 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 has not been issued in final form, update your application or draft permit.

To summarize, your options are as follows:

If a new rule is effective[1,2] **and you have . . .**	**Then . . .**
not been issued a final title V permit	update your permit application or draft permit
less than three years left on your permit	update your title V permit during renewal
three or more years left on your permit	your permitting authority will reopen your permit within 18 months after the publication date of the final rule or final amendments

[1] The rules' effective date is the date the final rule is published in the *Federal Register* (which is **6/23/99** for this rule).
[2] This also applies if existing rules are modified and final amendments are published in the *Federal Register*.

Title V permitting rules may change after the publication of this document. Keep abreast of any changes by checking the *Federal Register* **or** visit our title V websites at *www.epa.gov/ttn/oarpg/t5main.html* and *www.epa.gov/oar/oaqps/permits/*.

What portions of the General Provisions apply?

The General Provisions were published in the *Federal Register* on March 16, 1994 (Volume 59, page 12408) and apply to all NESHAP, 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. Table 1 to Subpart MMM and Table 9-1 in this chapter identify which sections of the General Provisions apply to this rule and which do not.

TABLE 9-1. General Provisions Applicability to Subpart MMM

Reference to Subpart A	Applies to subpart MMM	Comment
§ 63.1(a)(1)	Yes	Additional terms are defined in § 63.1361
§ 63.1(a)(2) - (3)	Yes	
§ 63.1(a)(4)	Yes	Subpart MMM (this table) specifies applicability of each paragraph in subpart A to subpart MMM
§ 63.1(a)(5)	N/A	Reserved
§ 63.1(a)(6) - (7)	Yes	
§ 63.1(a)(8)	No	Discusses State programs
§ 63.1(a)(9)	N/A	Reserved
§ 63.1(a)(10) - (14)	Yes	
§ 63.1(b)(1)	No	§ 63.1360 specifies applicability
§ 63.1(b)(2) - (3)	Yes	
§ 63.1(c)(1)	Yes	Subpart MMM (this table) specifies the applicability of each paragraph in subpart A to sources subject to subpart MMM
§ 63.1(c)(2)	No	Area sources are not subject to subpart MMM
§ 63.1(c)(3)	N/A	Reserved
§ 63.1(c)(4) - (5)	Yes	
§ 63.1(d)	N/A	Reserved
§ 63.1(e)	Yes	
§ 63.2	Yes	Additional terms are defined in § 63.1361; when overlap between subparts A and MMM occurs, subpart MMM takes precedence.
§ 63.3	Yes	Other units used in subpart MMM are defined in that subpart
§ 63.4(a)(1) - (3)	Yes	

TABLE 9-1. (cont'd)

Reference to Subpart A	Applies to subpart MMM	Comment
§ 63.4(a)(4)	N/A	Reserved
§ 63.4(a)(5) - (c)	Yes	
§ 63.5(a)	Yes	Except replace the terms "source" and "stationary source" in §63.5(a)(1) of subpart A with "affected source"
§ 63.5(b)(1)	Yes	
§ 63.5(b)(2)	N/A	Reserved
§ 63.5(b)(3) - (5)	Yes	
§ 63.5(b)(6)	No	§ 63.1360(g) specifies requirements for determining applicability of added PAI equipment
§ 63.5(c)	N/A	Reserved
§ 63.5(d) - (e)	Yes	
§ 63.5(f)(1)	Yes	Except replace "source" in § 63.5(f)(1) of subpart A with "affected source"
§ 63.5(f)(2)	Yes	
§ 63.6(a)	Yes	
§ 63.6(b)(1) - (2)	No	§63.1364 specifies compliance dates
§ 63.6(b)(3) - (4)	Yes	
§ 63.6(b)(5)	Yes	
§ 63.6(b)(6)	N/A	Reserved
§ 63.6(b)(7)	Yes	
§ 63.6(c)(1) - (2)	Yes	Except replace "source" in § 63.6(c)(1)-(2) of subpart A with "affected source"
§ 63.6(c)(3) - (4)	N/A	Reserved
§ 63.6(c)(5)	Yes	
§ 63.6(d)	N/A	Reserved
§ 63.6(e)	Yes	Except § 63.1360 specifies that the standards in subpart MMM apply during startup and shutdown for batch processes; therefore, these activities would not be covered in the startup, shutdown, and malfunction Plan
§ 63.6(f)	Yes	Except § 63.1360 specifies that the standards in subpart MMM also apply during startup and shutdown for batch processes

TABLE 9-1. (cont'd)

Reference to Subpart A	Applies to subpart MMM	Comment
§ 63.6(g)	Yes	An alternative standard has been proposed; however, affected sources will have the opportunity to demonstrate other alternatives to the Administrator
§ 63.6(h)	No	Subpart MMM does not contain any opacity or visible emissions standards
§ 63.6(i)(1)	Yes	
§ 63.6(i)(2)	Yes	Except replace "source" in § 63.6(i)(2)(i) and (ii) of subpart A with "affected source."
§ 63.6(i)(3) - (14)	Yes	
§63.6(i)(15)	N/A	Reserved
§ 63.6(i)(16)	Yes	
§ 63.6(j)	Yes	
§ 63.7(a)(1)	Yes	
§ 63.7(a)(2)(i) - (vi)	Yes	§ 63.1368 specifies that test results must be submitted in the Notification of Compliance Status due 150 days after the compliance date
§ 63.7(a)(2)(vii) - (viii)	N/A	Reserved
§ 63.7(a)(2)(ix) - (c)	Yes	
§ 63.7(d)	Yes	Except replace "source" in § 63.7(d) of subpart A with "affected source"
§ 63.7(e)(1)	Yes	§63.1365 contains test methods specific to PAI sources
§ 63.7(e)(2)	Yes	
§ 63.7(e)(3)	Yes	Except § 63.1365 specifies less than 3 runs for certain tests
§ 63.7(e)(4)	Yes	
§ 63.7(f)	Yes	
§ 63.7(g)(1)	Yes	Except §63.1368(a) specifies that the results of the performance test be submitted with the Notification of Compliance Status report
§ 63.7(g)(2)	N/A	Reserved
§ 63.7(g)(3)	Yes	
§ 63.7(h)	Yes	
§ 63.8(a)(1) - (2)	Yes	

TABLE 9-1. (cont'd)

Reference to Subpart A	Applies to subpart MMM	Comment
§ 63.8(a)(3)	N/A	Reserved
§ 63.8(a)(4)	Yes	
§ 63.8(b)(1)	Yes	
§ 63.8(b)(2)	No	§63.1366 specifies CMS requirements
§ 63.8(b)(3) - (c)(3)	Yes	Except the submittal date of the immediate startup, shutdown, and malfunction reports for CMS events shall be 2 days as in §63.6(e)(3)(iv)
§ 63.8(c)(4)	No	§63.1366 specifies monitoring frequencies
§ 63.8(c)(5) - (8)	No	
§ 63.8(d) - (f)(3)	Yes	
§ 63.8(f)(4)	Yes	Except § 63.1368(b) specifies that requests may also be included in the Precompliance report
§ 63.8(f)(5)	Yes	
§ 63.8(f)(6)	No	Subpart MMM does not require CEM's
§ 63.8(g)	No	§ 63.1366 specifies data reduction procedures
§ 63.9(a) - (d)	Yes	
§ 63.9(e)	No	
§63.9(f)	No	Subpart MMM does not contain opacity and visible emission standards
§ 63.9(g)	No	
§ 63.9(h)(1)	Yes	
§63.9(h)(2)(i)	Yes	Except § 63.1368(a)(1) specifies additional information to include in the Notification of Compliance Status report
§63.9(h)(2)(ii)	No	§ 63.1368 specifies the Notification of Compliance Status report is to be submitted within 150 days after the compliance date
§ 63.9(h)(3)	Yes	
§ 63.9(h)(4)	N/A	Reserved
§ 63.9(h)(5) - (6)	Yes	
§ 63.9(i)	Yes	
§ 63.9(j)	No	§63.1368(h) specifies procedures for notification of changes

TABLE 9-1. (cont'd)

Reference to Subpart A	Applies to subpart MMM	Comment
§ 63.10(a) - (b)(1)	Yes	
§ 63.10(b)(2)	No	§63.1367 specifies recordkeeping requirements
§ 63.10(b)(3)	Yes	
§ 63.10(c)	Yes	
§ 63.10(d)(1)	Yes	
§ 63.10(d)(2)	Yes	
§ 63.10(d)(3)	No	Subpart MMM does not include opacity and visible emission standards
§ 63.10(d)(4)	Yes	
§ 63.10(d)(5)	Yes	Except that actions and reporting for batch processes do not apply during startup and shutdown
§ 63.10(e)(1) - (2)(i)	Yes	
§63.10(e)(2)(ii)	No	Subpart MMM does not include opacity monitoring requirements
§63.10(e)(3)	Yes	
§ 63.10(e)(4)	No	Subpart MMM does not include opacity monitoring requirements
§ 63.10(f)	Yes	
§ 63.11 - § 63.15	Yes	

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Whom can I ask for help?

You can go to a lot of places for help, including all of the following:

- your State, local or Tribal agency for air pollution control
- your State's Small Business Assistance Program (SBAP)
- local, regional, or National Trade Associations
- your EPA Regional Office

State and local contacts can change frequently. To get the most current contact information, go to the STAPPA/ALAPCO website *(www.4cleanair.org)* and then the membership directory. The directory will give you the latest contact points for major air programs (that is, emission standards for toxic air pollutants, ozone, etc.) at the State and local level.

If you have questions about this rule, you should contact your State, local or Tribal agency before calling the EPA. Their rules may be more stringent than Federal requirements.

Many States have a ***Small Business Assistance Program.*** If you are a small business and do not know who your SBAP is, you can call EPA's Clean Air Technology Center Hotline at (919) 541-0800 or visit EPA's SBAP at *www.epa.gov/ttn/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."

TABLE 10-1. EPA Regional Air Division Offices

EPA Regional Office - MACT Implementation Contact Division Information*

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

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

Can I get more information on the Web?

You can get a wealth of information on the World Wide Web (WWW). Some of the more popular ways to get information on this rule include:

- EPA's **Air Toxics Website** (www.epa.gov/ttn/atw)

  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/atw/pest/pestpg.html.*

- EPA's **Applicability Determination Index** (ADI) (http://www.epa.gov/compliance/assistance/applicability/index.html)
  EPA responds to written inquiries about the broad range of NSPS and NESHAP regulatory requirements as they pertain to a specific source. These inquiries may question whether a regulation applies to a specific source, or may relate to the construction, reconstruction, modification, testing, monitoring, recordkeeping or reporting requirements contained in the regulation as it applies to a specific source.

- 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, metal finishing industries, the chemical industry, printed wiring board manufacture, transportation, and local governments.

- **STAPPA/ALAPCO** home page (http://www.4cleanair.org)
  STAPPA/ALAPCO is the State and Territorial Air Pollution Program Administrators (STAPPA) and Local Air pollution Control Officials (ALAPCO) organization. STAPPA/ALAPCO has members representing each State and local agency for air pollution control.

  You can get air pollution information at this site, including a document entitled *"Communicating Air Quality: A Compendium of Resources."* It lists educational materials on air pollution that State and local agencies have created.

- National Service Center for Environmental Publications (NSCEP) home page at (http://www.epa.gov/ncepihom) maintains hard and electronic copies of EPA documents. Additional copies of this document may be obtained free of charge via this website or ordered by phone at 1-800-490-9198.

- MACT Case Studies for Pharmaceuticals Production, PAI Production, and Miscellaneous Organic Chemical Manufacturing (EPA 305-B-04-001). This document may be downloaded from www.epa.gov or ordered from NSCEP.

- National Environmental Compliance Assistance Clearinghouse (http://cfpub.epa.gov/clearinghouse/). This website provides quick access to compliance assistance tools, contacts, and planned activities from U.S. EPA, its partners, and other compliance assistance providers.

Is there a list of commonly asked questions?

For a list of questions and answers about the final rule, you will 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 ATW Pesticide Active Ingredient page at www.epa.gov/ttn/atw/pest/pestpg.html.

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

How many facilities may need to meet emission limits?

According to information we collected in 1995, we estimated that approximately 78 pesticide active ingredient production facilities might be affected by this rule.

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/atw/eparules.html*, scroll down until you see "MACT Implementation Strategy." The cookbook is in Appendix G of this document.

Who regulates facilities in Indian Country?

The Clean Air Act authorizes the Administrator to treat an Indian tribe in the same manner as a state for the Clean Air Act if specifically enumerated criteria in 40 CFR 49.3 are met. The EPA encourages tribes to develop the capacity to administer section 112(d) programs and to request delegation. Where such programs approval does not exist, the EPA Regional Office is the regulatory authority. State programs are not applicable in Indian country unless EPA specifically delegated such authority to a particular state.

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. This represents about a 65 percent reduction from baseline levels prior to promulgation of the rule. About 47 percent of the reduction is from process vents, 37 percent is from wastewater, and the remainder is from equipment leaks and storage tanks.