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INSPECTION TOOL FOR THE MISCELLANEOUS ORGANIC CHEMICAL MANUFACTURING NESHAP

Section 6.0
Section 7.0
Section 8.0
Section 9.0

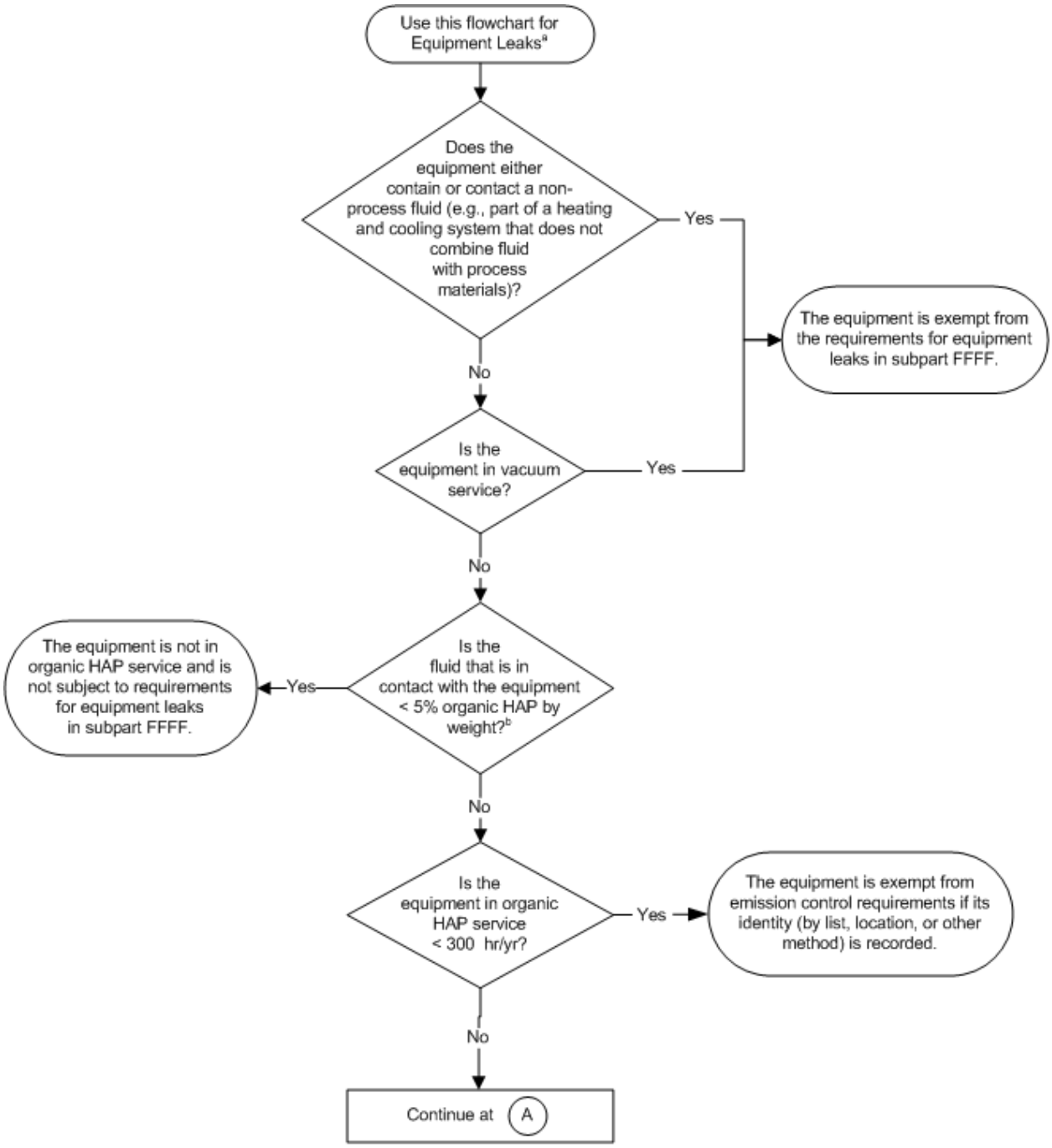
Air Compliance Branch
Compliance Assessment and Media Programs Division (CAMPD)
Office of Compliance (OC)
Office of Enforcement and Compliance Assurance (OECA)
U.S. Environmental Protection Agency Washington, DC 20460

6.0 Equipment Leaks

This section contains applicability and control flowcharts and inspection checklists for equipment leaks. Use the flowchart in Figure 6-1 to identify equipment that is subject to the equipment leak requirements in subpart FFFF and the control options for such equipment. Use the checklists in Tables 6-1 through 6-3 to determine compliance with the various control options. Table 6-1 is for the basic LDAR program that specifies different requirements for each type of equipment. Table 6-2 is for the pressure test option. Table 6-3 is for processes or portions of processes that are enclosed and emissions are vented to a process, fuel gas system, or control device.

As illustrated in Figure 6-1, the final rule requires compliance with one of three existing rules for equipment leaks. These rules are 40 CFR part 63, subpart H; 40 CFR part 63, subpart UU; or 40 CFR part 65, subpart F (also known as the Consolidated Federal Air Rule [CAR]). New sources must comply with one of the cross-referenced rules in its entirety, but existing sources may elect to comply with alternative LDAR requirements for certain connectors and pumps. The optional provisions for existing sources are listed in Figure 6-1.

The checklists in this chapter are specifically designed for determining compliance with 40 CFR part 63, subpart UU. Most of the requirements in subpart H and the CAR are essentially the same, but the checklists do not include the specific citations for these rules. One requirement that differs among the rules is the skip monitoring intervals for connectors. Figure 6-2 illustrates how to determine the applicable interval under subpart UU and the CAR. The more complicated procedures in subpart H are not illustrated.



[a] "Equipment" consists of pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves and lines, valves, connectors, and instrumentation systems.

[b] Equipment is presumed to be in organic HAP service unless you demonstrate that it is not by following the procedures in §63.180(d).

Figure 6-1. Applicability and requirements for equipment leaks.

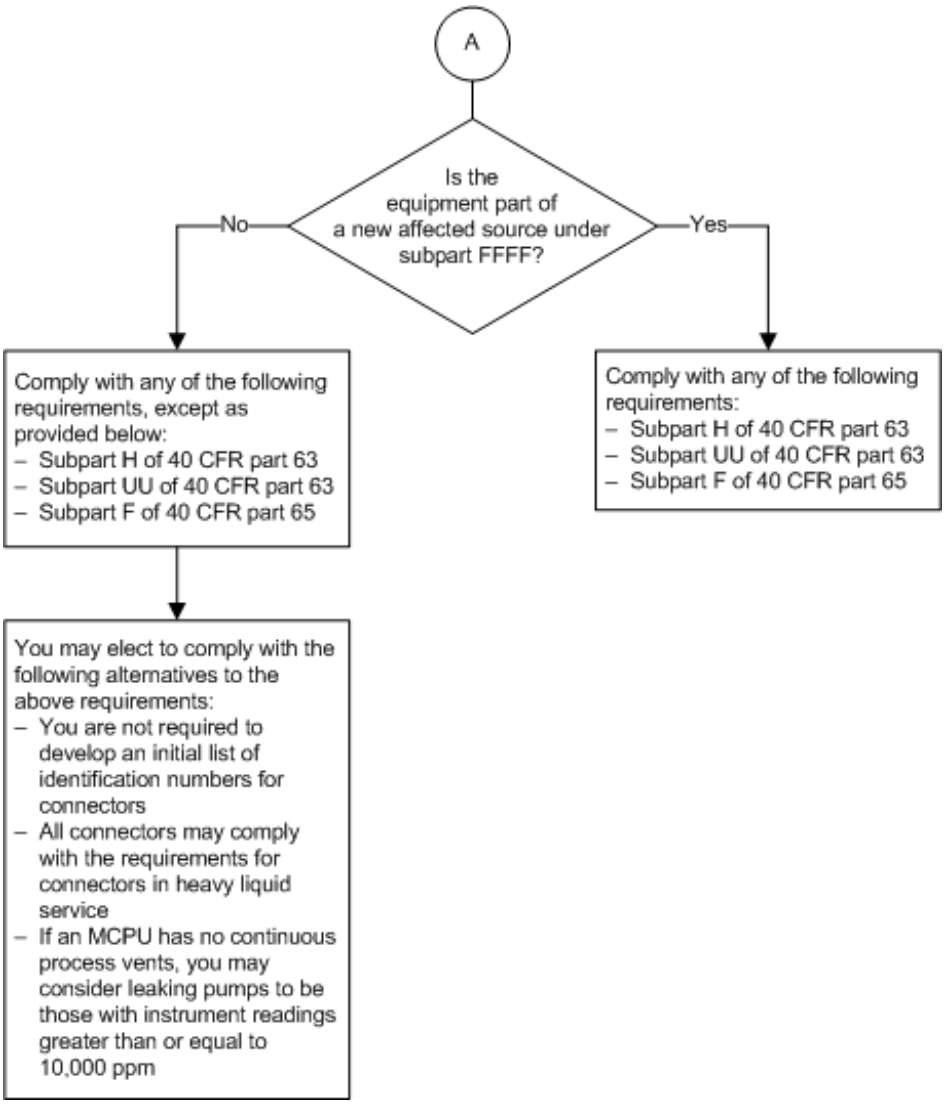


Figure 6-1. (continued)

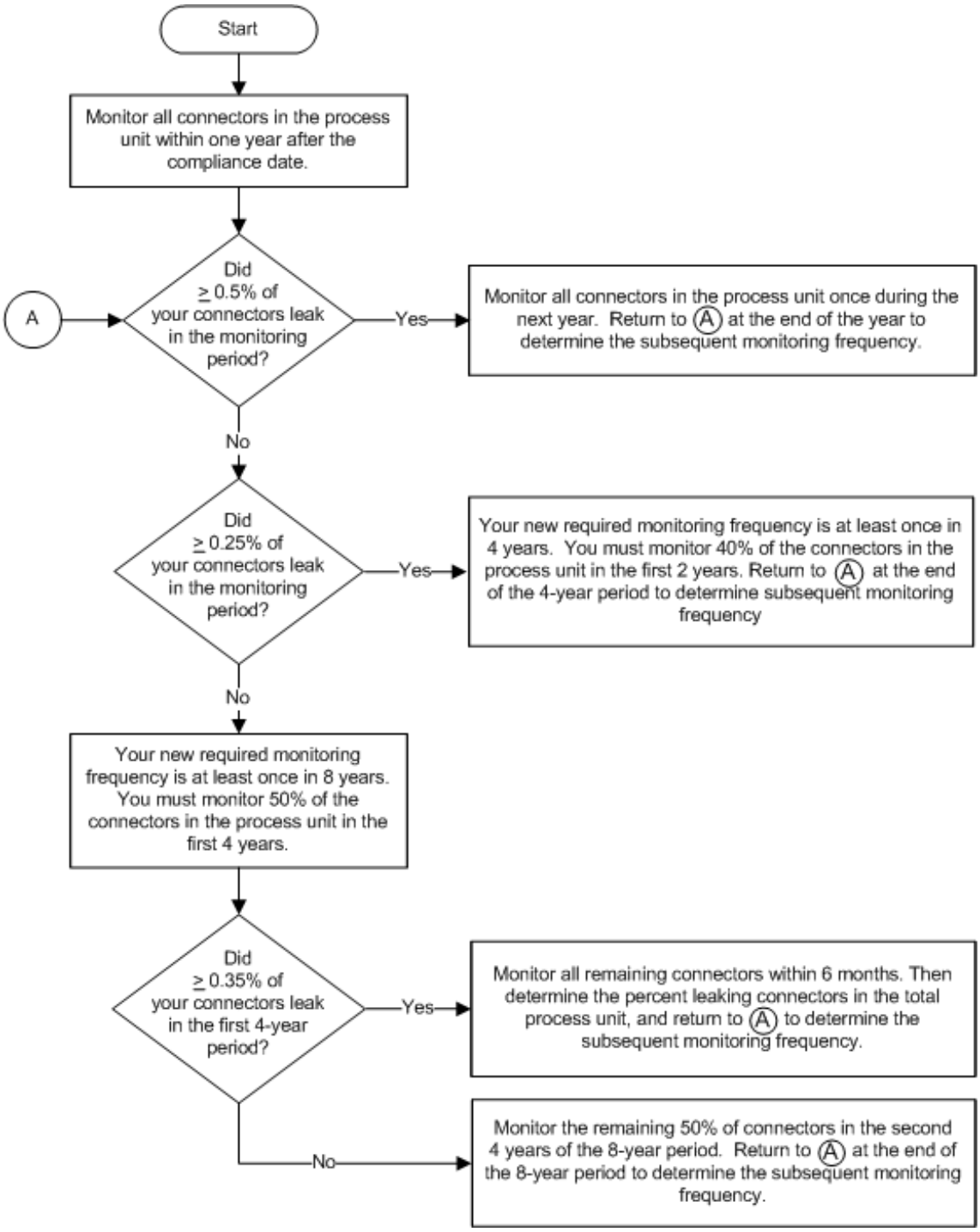


Figure 6-2. Flowchart of monitoring frequencies for connectors in gas/vapor service or light liquid service under subpart UU and the CAR.

Table 6-1. Checklist to Demonstrate Compliance with the Basic LDAR Program

Note: Use this checklist to demonstrate compliance with the basic LDAR program requirements for each type of equipment as specified in 40 CFR part 63, subpart UU. A "yes" response to a question in this checklist means compliance with that requirement, and a "no"response means noncompliance with the requirement. If a question is not applicable, check the "N/A" box.

Process or Process Area Identification:_____

I. Review of Records

1. Does the facility have the following equipment identification records as an alternative to physically tagging each piece of equipment:

(a)	General identification of equipment that is subject to subpart FFFF (e.g., on a plant site plan, in log entries, designation of process unit or affected source boundaries, etc.)? *§§63.1022(a) and 63.1038(b)(1)*	☐ Y	☐ N/A	☐ N
(b)	Specific identification of connectors (either individually or the total number of connectors as a group in a designated area)? *§§63.1022(b)(1) and 63.1038(b)(1)* *Note: This provision is optional for existing sources. §63.2480(b)(3)* *Note: Inaccessible, ceramic, or ceramic-lined connectors are exempt from this recordkeeping requirement.*	☐ Y	☐ N/A	☐ N
(c)	Specific identification of pumps in light liquid service, agitators, pressure relief devices in gas and vapor service, or compressors from which leaks are routed to a process, a fuel gas system, or through a closed-vent system to a control device? *§§63.1022(b)(2) and 63.1038(b)(1)* *Note: Go to item II.7 in this checklist (i.e., Table 6-1) if emissions from equipment leaks are routed to a process or fuel gas system. Go to items I.15 and II.7 in this checklist if emissions are routed through a closed-vent system to a control device. No other items in this checklist apply to equipment leak emissions routed to a process, fuel gas system, or through a closed-vent system to a control device.*	☐ Y	☐ N/A	☐ N
(d)	Specific identification of pressure relief devices that are equipped with rupture disks? *§§63.1022(b)(3) and 63.1038(b)(1)*	☐ Y	☐ N/A	☐ N
(e)	Specific identification of instrumentation systems? *§§63.1022(b)(4) and 63.1038(b)(1)*	☐ Y	☐ N/A	☐ N
(f)	Specific identification (either by list, location, or other method) of equipment in organic HAP service less than 300 hours per calendar year within the affected source? *§§63.1022(b)(5) and 63.1038(b)(1)*	☐ Y	☐ N/A	☐ N
(g)	Identification of equipment designated as unsafe-to-monitor or difficult-to-monitor? *§63.1022(c)(3)*	☐ Y	☐ N/A	☐ N

Table 6-1. (continued)

I. Review of Records			
2. If the facility has designated any valves, pumps, connectors, and/or agitators as unsafe to monitor, do they have a written plan describing the actual monitoring frequency that will be used (but not more frequently than would otherwise be required) and stating that any such equipment that is found to be leaking will be repaired following the same procedures as for any other leaking equipment? *§§63.1022(c)(4)(i) and 63.1038(b)(2)* *Note: No other records described in this checklist (i.e., Table 6-1) apply to equipment that is designated as unsafe to monitor.*	☐ Y	☐ N/A	☐ N
3. If the facility has designated any valves and/or agitators as difficult to monitor, do they have a written plan describing the actual monitoring frequency that will be used (at least once per year) and stating that any such equipment that is found to be leaking will be repaired following the same procedures as for any other leaking equipment? *§§63.1022(c)(4)(ii) and 63.1038(b)(2)* *Note: No other records described in this checklist (i.e., Table 6-1) apply to equipment that is designated as difficult to monitor.*	☐ Y	☐ N/A	☐ N
4. If the facility has designated any compressors as unsafe to repair, do records identify such compressors and explain why the connectors are unsafe to repair? *§§63.1022(d)(2) and 63.1038(b)(3)*	☐ Y	☐ N/A	☐ N
5. If the facility has designated any compressors as operating with an instrument reading of less than 500 ppm above background, do records identify such compressors? *§§63.1022(e) and 63.1038(b)(4)*	☐ Y	☐ N/A	☐ N
6. If the facility has determined that any equipment is in heavy liquid service, do they have records of the information, data, and analyses used to make such determinations? *§§63.1022(f)(1) and 63.1038(b)(5)*	☐ Y	☐ N/A	☐ N
7. When leaks are detected by instrument monitoring (for valves, pumps, connectors, agitators, pressure relief devices, and compressors) or by sensory monitoring (for pumps and agitators), does the facility maintain all of the following records: *§§63.1023(e)(2), 63.1024(f), and 63.1038(b)(6) and (7)* *Note: Although the rule does not explicitly require identification of leaking equipment, the records must be sufficiently specific to allow an inspector to determine compliance with the equipment leak repair requirements.*			
(a) The date of the first attempt to repair the leak?	☐ Y	☐ N/A	☐ N
(b) The date of successful repair of the leak?	☐ Y	☐ N/A	☐ N
(c) The maximum instrument reading measured by Method 21 at the time the leak was repaired or determined to be nonrepairable	☐ Y	☐ N/A	☐ N

Table 6-1. (continued)

I. Review of Records			
(d) The reason for the delay if the leak was not repaired within 15 calendar days after the leak was detected? *Note: Section 63.1024(d) specifies conditions under which delay of repair is allowed.* *Note: For a valve, if delay of repair beyond a process unit shutdown was caused by depletion of stocked parts, the records must also document that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.*	☐ Y	☐ N/A	☐ N
(e) The dates of process unit (or affected source) shutdowns that occurred while the equipment was unrepaired?	☐ Y	☐ N/A	☐ N
8. For valves in gas and vapor service or in light liquid service, does the facility keep records of both of the following, as applicable:			
(a) The monitoring schedule? *§§63.1025(b)(3)(vi) and 63.1038(c)(1)(i)*	☐ Y	☐ N/A	☐ N
(b) All of the following information for valve subgroups: *§§63.1025(b)(4)(iv) and 63.1038(c)(1)(ii)* *Note: Subgroups for a process unit or affected source are allowed only if less than 2 percent of the total number of valves in all subgroups are determined to be leaking.*			
• Which valves are assigned to each subgroup?	☐ Y	☐ N/A	☐ N
• Monitoring results and calculations made for each subgroup in each monitoring period (i.e., the total number of valves monitored, the number found leaking, the number of nonrepairable valves, the percent leaking in the subgroup, and the percent leaking for determining the subsequent monitoring frequency for the subgroup as specified in §63.1025(c)(1)(ii) and (2))?	☐ Y	☐ N/A	☐ N
• Which, if any, valves have been reassigned from one subgroup to another, the last monitoring result prior to a reassignment, and the date when the reassignment was made?	☐ Y	☐ N/A	☐ N
• The results of the semiannual overall performance calculations?	☐ Y	☐ N/A	☐ N
9. For pumps in light liquid service, does the facility keep all of the following records:			
(a) The occurrence and dates of weekly visual inspections for leaks? *§§63.1026(b)(4) and (e)(1)(v) and 63.1038(c)(2)(i) and (ii)* *Note: These inspections are not required for pumps with no external shaft.*	☐ Y	☐ N/A	☐ N

Table 6-1. (continued)

I. Review of Records			
(b) All of the following records for pumps equipped with a dual mechanical seal system that includes a barrier fluid system: *§§63.1026(e)(1)(i) and 63.1038(c)(2)(iii)*			
• The design criteria related to the presence and frequency of drips that indicates failure of the seal system, the barrier fluid system, or both?	☐ Y	☐ N/A	☐ N
• An explanation of the design criteria?	☐ Y	☐ N/A	☐ N
• Any changes to these design criteria?	☐ Y	☐ N/A	☐ N
• The reasons for any changes?	☐ Y	☐ N/A	☐ N
10. For connectors in gas and vapor service or in light liquid service, does the facility maintain a record of the start date and end date of each monitoring period? *§§63.1027(b)(3)(v) and 63.1038(c)(3)* *Note: This record is not required for existing sources that elect to comply with §63.1029 instead of §63.1027. §63.2480(b)(4)* *Note: The monitoring and recordkeeping requirements do not apply to inaccessible, ceramic, or ceramic-lined connectors.*	☐ Y	☐ N/A	☐ N
11. For agitators in gas and vapor service or in light liquid service, does the facility maintain all of the following records:			
(a) The occurrence and dates of weekly visual inspections for leaks? *§§63.1028(c)(3) and 63.1038(c)(4)(i)* *Note: According to §63.1028(e)(2), these inspections are not required for agitators with no external shaft.* *Note: Although §63.1028(e)(1)(iv) does not explicitly require records documenting the inspection for agitators with dual mechanical seals, a record would be required in order to demonstrate compliance (similar to the requirement in §63.1026(e)(1)(v)).*	☐ Y	☐ N/A	☐ N
(b) For each agitator equipped with a dual mechanical seal system that includes a barrier fluid system, the design criteria related to the presence and frequency of drips that indicates failure of the seal system, the barrier fluid system, or both; an explanation of the design criteria; any changes to the design criteria; and the reasons for any changes? *§§63.1028(e)(1)(vi)(B) and 63.1038(c)(4)(ii)*	☐ Y	☐ N/A	☐ N

Table 6-1. (continued)

I. Review of Records

12.	For pressure relief devices in gas and vapor service or in light liquid service, does the facility maintain records of the following information for monitoring within 5 days after a pressure release? *§§63.1030 (c)(3) and 63.1038(c)(5)* *Note: These requirements do not apply to pressure relief devices that are equipped with a rupture disk upstream of the pressure relief device.*			
	(a) Date the monitoring was conducted?	☐ Y	☐ N/A	☐ N
	(b) Background level measured?	☐ Y	☐ N/A	☐ N
	(c) Maximum instrument reading measured?	☐ Y	☐ N/A	☐ N
13.	For each compressor that is equipped with a seal system that includes a barrier fluid system, does the facility maintain records of either of the following:			
	(a) the design criteria for the barrier fluid sensor that indicates failure of the seal system, the barrier fluid system, or both; an explanation of the design criteria; any changes to the design criteria; and the reasons for any changes, or *§§63.1031(d)(2) and 63.1038(c)(6)(i)*	☐ Y	☐ N/A	☐ N
	(b) If the facility complies with the alternative compressor standard (i.e., the compressor is designated as operating with an instrument reading of less than 500 parts per million above background), all of the following information for each compliance test: *§§63.1031(f)(2) and 63.1038(c)(6)(ii)*			
	• Date of each compliance test?	☐ Y	☐ N/A	☐ N
	• Background level measured?	☐ Y	☐ N/A	☐ N
	• Maximum instrument reading?	☐ Y	☐ N/A	☐ N
14.	If the facility has implemented a quality improvement program for pumps, are all of the following records maintained:			
	(a) All of the following data for each pump: *§§63.1035(d)(2) and 63.1038(c)(7)(i)*			
	• Pump type?	☐ Y	☐ N/A	☐ N
	• Pump manufacturer?	☐ Y	☐ N/A	☐ N
	• Seal type?	☐ Y	☐ N/A	☐ N
	• Seal manufacturer?	☐ Y	☐ N/A	☐ N
	• Pump design?	☐ Y	☐ N/A	☐ N
	• Materials of construction?	☐ Y	☐ N/A	☐ N
	• Barrier fluid or packing material, if applicable?	☐ Y	☐ N/A	☐ N

Table 6-1. (continued)

I. Review of Records			
• Year installed?	☐ Y	☐ N/A	☐ N
• Service characteristics of the pumped stream?	☐ Y	☐ N/A	☐ N
• Maximum instrument readings observed in each monitoring observation before repair, response factor for the stream (if appropriate), instrument model number, and date of observation?	☐ Y	☐ N/A	☐ N
• If a leak was detected, the repair methods used and the instrument readings after repair?	☐ Y	☐ N/A	☐ N
• If the data will be analyzed as part of a larger analysis program involving data from other plants or other types of process units or affected sources, a description of any maintenance or quality assurance programs used in the process unit or affected source that are intended to improve emission performance?	☐ Y	☐ N/A	☐ N
(b) A list identifying areas associated with poorer than average performance and the associated service characteristics of the stream, the operating conditions and maintenance practices? *§§63.1035(e)(3)(i) and 63.1038(c)(7)(v)*	☐ Y	☐ N/A	☐ N
(c) All of the following information for each trial evaluation program: *§§63.1035(d)(6)(i), (d)(6)(iii), (d)(6)(vi), (e)(3)(ii), and (e)(3)(iii); and 63.1038(c)(7)(ii) and (iii)* *Note: Section 63.1035(d)(6) describes the situations under which a trial evaluation program must be conducted.*			
• A list of the candidate superior performing pump seal designs or technologies to be evaluated?	☐ Y	☐ N/A	☐ N
• The reasons for rejecting any specific candidate superior emission performing pump technologies from performance trials?	☐ Y	☐ N/A	☐ N
• The stages for evaluating the candidate pump designs or pump seal technologies?	☐ Y	☐ N/A	☐ N
• The anticipated time period necessary to test the applicability of candidate designs or technologies?	☐ Y	☐ N/A	☐ N
• The frequency of monitoring or inspection of the equipment?	☐ Y	☐ N/A	☐ N
• The range of operating conditions over which the component will be evaluated?	☐ Y	☐ N/A	☐ N
• The beginning date and actual duration of performance trials for each candidate superior emission performing technology?	☐ Y	☐ N/A	☐ N
• Conclusions regarding the emission performance and the appropriate operating conditions and services for the trial pump seal technologies or pumps?	☐ Y	☐ N/A	☐ N

Table 6-1. (continued)

I. Review of Records			
• If all alternatives are judged to be technically infeasible or incapable of reducing emissions, an engineering evaluation of each alternative documenting the physical, chemical, or engineering basis for the judgement?	☐ Y	☐ N/A	☐ N
(d) All of the following records of ongoing activities during the QIP:			
• The rolling average percent leaking pumps? *§§63.1035(e)(1)(i) and 63.1038(c)(7)(v)*	☐ Y	☐ N/A	☐ N
• Documentation of all inspections of pumps or pump seals that exhibited frequent seal failures and were removed from the process unit or affected source due to leaks? *§§63.1035(d)(4) and (e)(1)(ii) and 63.1038(c)(7)(v)*	☐ Y	☐ N/A	☐ N
• The beginning and end dates for the QIP? *§§63.1035(e)(1)(iii) and 63.1038(c)(7)(v)*	☐ Y	☐ N/A	☐ N
• If a leak is not repaired within 15 calendar days after its discovery, the reason for the delay and the expected date of successful repair? *§§63.1035(e)(2) and 63.1038(c)(7)(v)*	☐ Y	☐ N/A	☐ N
(e) Quality assurance program documentation, including records indicating that all pumps replaced or modified during the period of the QIP are in compliance with the quality assurance program? *§§63.1035(d)(7) and (e)(4) and 63.1038(c)(7)(iv) and (v)*	☐ Y	☐ N/A	☐ N
(f) The following records related to the pump or pump seal replacement requirements: *Note: The number of years after starting the QIP when replacements must begin is specified in §63.1035(d)(8).*			
• Records documenting compliance with the 20 percent or greater annual replacement rate? *§§63.1035(e)(5) and 63.1038(c)(7)(v)*	☐ Y	☐ N/A	☐ N
• If complying with the schedule for corporations with fewer than 100 employees, information documenting the number of employees, including employees providing professional and technical contracted services? *§§63.1035(e)(6) and 63.1038(c)(7)(v)*	☐ Y	☐ N/A	☐ N

Table 6-1. (continued)

I. Review of Records

15. If emissions from any equipment are routed through a closed-vent system to a non-flare control device, are records maintained of all of the following information: *§63.998(d)(4) as referenced from §§63.1034(b), 63.982(c)(3), and 63.986(c)*

    Note: Use the checklists in Tables 9-1, 9-2, and 10-1 if the control device is a flare. §§63.1034(b)(2)(iii) and 63.998(a)(1)

    (a) Detailed schematics, design specifications of the control device, and piping and instrumentation diagrams? ☐ Y ☐ N/A ☐ N

    (b) The dates and descriptions of any changes in the design specifications? ☐ Y ☐ N/A ☐ N

    (c) A description of the parameter or parameters monitored to ensure that the control device is operated and maintained as designed, and a description of why each parameter was selected for monitoring? ☐ Y ☐ N/A ☐ N

    (d) Dates and durations when the monitored parameter values indicate the closed-vent system and control device(s) were not being operated as designed? ☐ Y ☐ N/A ☐ N

    (e) Dates and durations when the monitoring device was inoperative? ☐ Y ☐ N/A ☐ N

    (f) Dates and durations of startup and shutdown of the control device? ☐ Y ☐ N/A ☐ N

16. If the facility complies with the alternative equipment monitoring schedule for batch processes as specified in §63.1036(c), are records maintained of all of the following information: *§§63.1036(d) and 63.1038(c)(8)(ii)*

    Note: All other items in this checklist also apply when the facility complies with this alternative.

    (a) A list of equipment added to the batch product process since the last monitoring? ☐ Y ☐ N/A ☐ N

    (b) For any components for which the facility adjusts the monitoring frequency in accordance with this alternative, documentation demonstrating the proportion of time during the calendar year that the equipment is in use? ☐ Y ☐ N/A ☐ N

    (c) The following information related to monitoring equipment that is added after reconfiguration to produce a new product:

    - Date of the monitoring? ☐ Y ☐ N/A ☐ N

      Note: The monitoring must be conducted within 30 days of startup of the process. §63.1036(c)(3)(i)

    - Either the actual monitoring results if leaks were found or a statement that the monitoring was conducted if no leaks were found? ☐ Y ☐ N/A ☐ N

Table 6-1. (continued)

I. Review of Records				
17.	Are all records kept for at least 5 years? *§63.10(b)(1)* *Note: Some records must be kept longer. For example, if connectors are monitored once every 8 years, connector monitoring records must be kept 5 years beyond the date of their last use. Another example is the non-flare control device records identified in items 15a, b, and c of this checklist must be kept for the life of the control device. §§63.1023(e)(2) and 63.998(d)(4)*		☐ Y	☐ N
II. Visual Inspections				
1.	Are visible, weatherproof identifications attached to all equipment that has been determined to be leaking and has not yet been repaired, including equipment determined to be nonrepairable? *§63.1023(e)(1)*	☐ Y	☐ N/A	☐ N
2.	Are the visible, weatherproof leak identifications still attached to repaired valves and connectors in gas or light liquid service that have not yet been monitored as required by §§63.1025(d)(2) and 63.1027(b)(3)(iv)? *§63.1024(c)(1)* *Note: This requirement does not apply to connectors in gas/vapor or light liquid service at existing services that elect to comply with §63.2480(b)(4).* *Note: The monitoring must be performed within 3 months after repair.*	☐ Y	☐ N/A	☐ N
3.	Is a rupture disk in place upstream of each pressure relief device for which the facility claims exemption from the otherwise required monitoring? *§63.1030(e)*	☐ Y	☐ N/A	☐ N
4.	Are sampling connection systems equipped with a closed-purge, closed-loop, or closed-vent system? *§63.1032(b)* *Note: In-situ sampling systems are exempt from this requirement. §63.1032(d)*	☐ Y	☐ N/A	☐ N
5.	Are open-ended valves and lines equipped with caps, blind flanges, plugs, or a second valve? *Note: Open-ended valves and lines in an emergency shutdown system that are designed to open automatically in the event of a process upset are exempt from this requirement. Open-ended lines and valves containing materials that would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard are also exempt.*	☐ Y	☐ N/A	☐ N
6.	If the facility indicates equipment is vented to a control device, is a closed-vent system in place?	☐ Y	☐ N/A	☐ N

Table 6-1. (continued)

II. Visual Inspections		
7. If emissions are routed to a process or a fuel gas system, is the process or fuel gas system operating when emissions are routed to it? *§63.984(a)(1) as referenced from §§63.1034(b)(1) and 63.982(d)*	☐ Y ☐ N/A	☐ N
III. Note All Deficiencies		

Table 6-2. Checklist for Determining Compliance with the Pressure Testing Alternative Standard

Note: Use this checklist for each process that is pressure tested as specified in §63.1036(b). A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If a question is not applicable, check the "N/A" box.

Process Identification:_____

I. Review of Records *§§63.1036(b)(7) and 63.1038(c)(8)(i)*			
1. Do records identify each product produced during the calendar year (or codes for those products)?	☐ Y	☐ N/A	☐ N
2. Is the process equipment either physically tagged, or is it identified on a plant site plan, in log entries, or by some other method?	☐ Y	☐ N/A	☐ N
3. Is all of the following information recorded for each pressure test:			
(a) Date of the test?	☐ Y	☐ N/A	☐ N
(b) The test pressure?	☐ Y	☐ N/A	☐ N
(c) The observed pressure drop, for a gas pressure/vacuum test?	☐ Y	☐ N/A	☐ N
(d) Documentation of any visible, audible, or olfactory evidence of fluid loss, for a liquid pressure test?	☐ Y	☐ N/A	☐ N
4. Is all of the following information recorded anytime the process equipment train does not pass two consecutive pressure tests: *Note: Section 63.1036(b)(7)(v) specifies that these records must be maintained for only 2 years.*			
(a) The date of each pressure test?	☐ Y	☐ N/A	☐ N
(b) Repair methods applied in each attempt to repair the leak(s)?	☐ Y	☐ N/A	☐ N
(c) All of the following information if repair is not completed within 30 calendar days after the second pressure test:			
• Reason for the delay?	☐ Y	☐ N/A	☐ N
• Expected date for delivery of the replacement equipment?	☐ Y	☐ N/A	☐ N
• Actual date of delivery of the replacement equipment?	☐ Y	☐ N/A	☐ N
(d) Date of successful repair?	☐ Y	☐ N/A	☐ N
5. Are all records kept for at least 5 years, except as noted above? *§63.10(b)(1)*	☐ Y	☐ N/A	☐ N

Table 6-2. (continued)

II. Note All Deficiencies

Table 6-3. Checklist for Determining Compliance with the Enclosed Process Alternative

Note: Use this checklist for each process or portion of a process that is enclosed and emissions from equipment leaks are routed to a process, fuel gas system, or through a closed-vent system to a control device. A "yes" response to a question in this checklist means compliance with that requirement, and a "no" response means noncompliance with the requirement. If a question is not applicable, check the "N/A" box.

Process Identification:_____

I. Review of Records

1. Do records document all of the following information about the process unit and the enclosure: *§§63.1037(b) and 63.1038(c)(9)*

   (a) Identification of the process unit and the organic HAP that it handles? ☐ Y ☐ N/A ☐ N

   (b) A schematic of the process unit, enclosure, and closed-vent system? ☐ Y ☐ N/A ☐ N

   (c) A description of the system used to create a negative pressure in the enclosure? ☐ Y ☐ N/A ☐ N

2. Do records document all of the following information, if emissions are routed through a closed-vent system to a non-flare control device: *§63.998(d)(4), as referenced from §§63.1037(a), 63.1034(b), 63.982(c)(3), and 63.986(c)*

   Note: Use the checklists in Tables 9-1, 9-2, and 10-1 if the control device is a flare. §§63.1037(a), 63.1034(b), and 63.982(b)

   (a) Detailed schematics, design specifications of the control device, and piping and instrumentation diagrams? ☐ Y ☐ N/A ☐ N

   (b) The dates and descriptions of any changes in the design specifications? ☐ Y ☐ N/A ☐ N

   (c) A description of the parameter or parameters monitored to ensure that the control device is operated and maintained as designed, and a description of why each parameter was selected for monitoring? ☐ Y ☐ N/A ☐ N

   (d) Dates and durations when the monitored parameter values indicate the closed-vent system and control device(s) were not being operated as designed? ☐ Y ☐ N/A ☐ N

   (e) Dates and durations when the monitoring device was inoperative? ☐ Y ☐ N/A ☐ N

   (f) Dates and durations of startup and shutdowns of the control devices? ☐ Y ☐ N/A ☐ N

3. Are all records kept for at least 5 years? *§63.10(b)(1)* ☐ Y ☐ N/A ☐ N

II. Visual Inspections

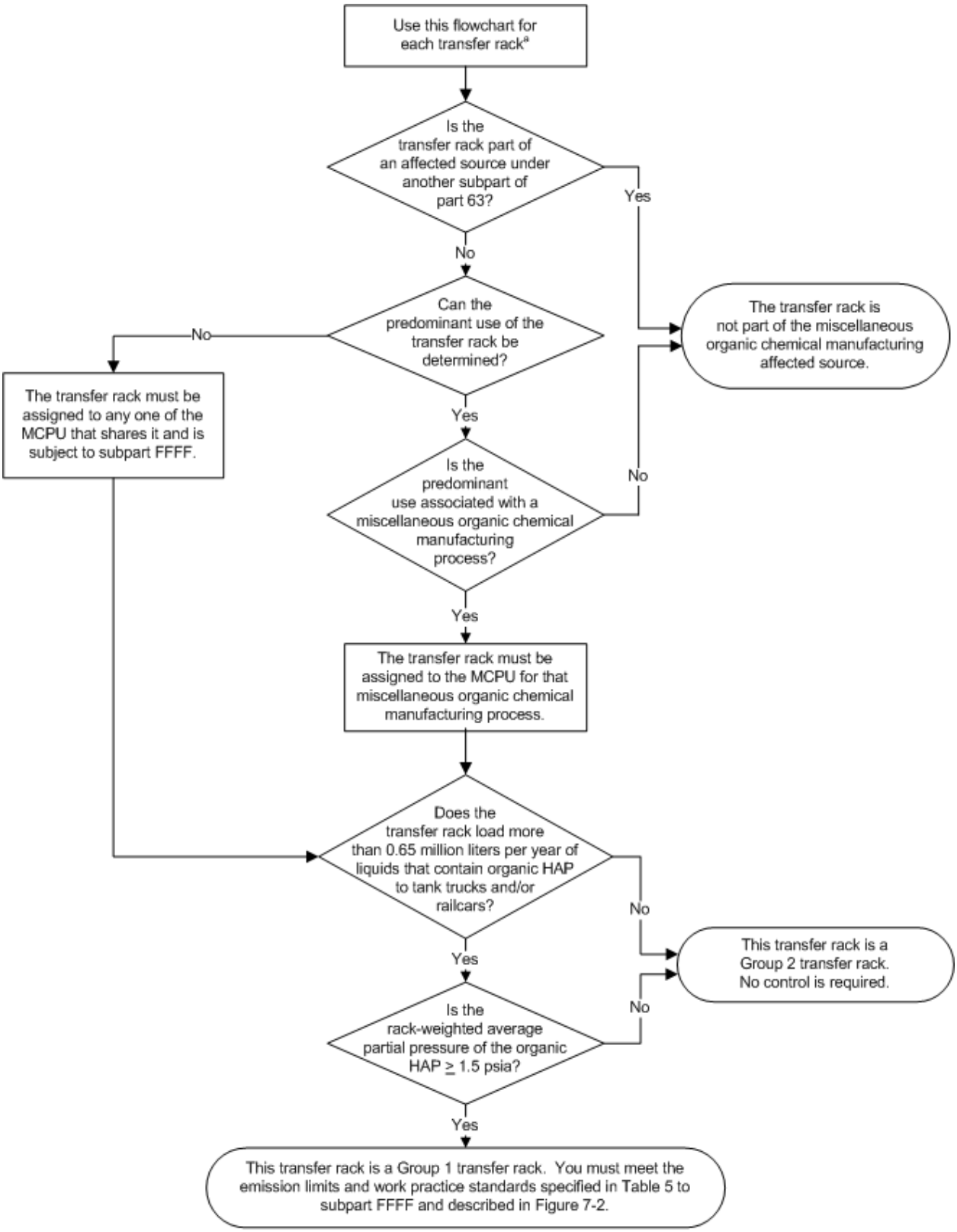
1. Is the equipment enclosed? ☐ Y ☐ N

Table 6-3. (continued)

III. Note All Deficiencies

7.0 Transfer Racks

This section contains applicability and control flowcharts and inspection checklists for controlling organic HAP emissions from transfer racks. Use Figures 7-1 and 7-2 to determine if the transfer rack is part of the affected source subject to subpart FFFF, the group status of transfer racks that are subject to subpart FFFF, and the available compliance options. Then use the checklist in Table 7-1 for each transfer rack. This checklist is used to identify the transfer rack and document its group status. If the transfer rack is Group 1, the checklist allows you to document the applicable control technique(s) for the emissions and it points you to checklists in other sections for closed-vent systems and applicable add-on control devices. The checklist also identifies some general recordkeeping requirements for both Group 1 and Group 2 transfer racks.



[a] "Transfer rack" means the collection of loading arms and loading hoses, at a single loading rack, including associated pumps, meters, shutoff valves, relief valves, and other piping and valves.

Figure 7-1. Applicability for transfer racks.

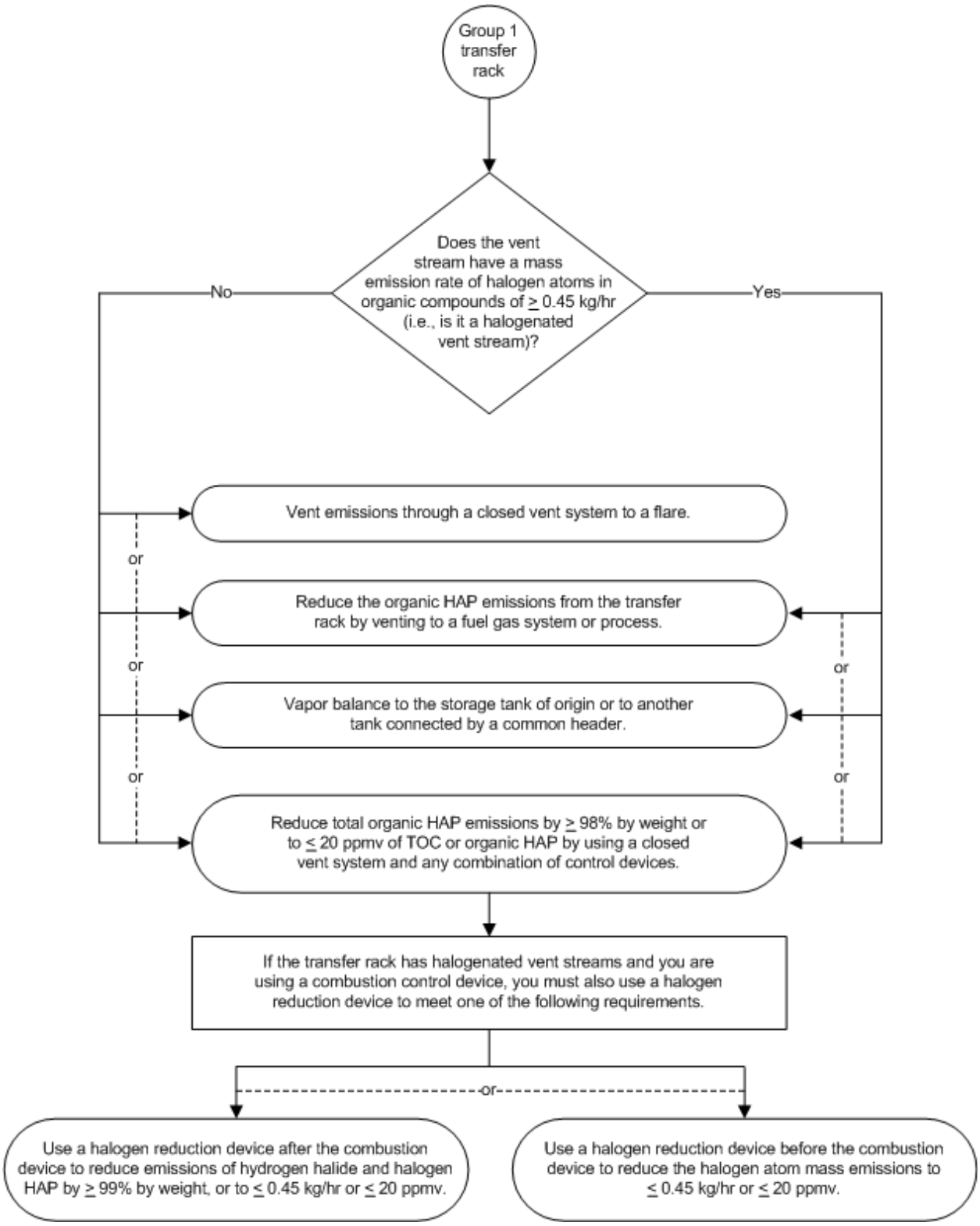


Figure 7-2. Emission limits and work practice standards for Group 1 transfer racks.

Table 7-1. Inspection Checklist for Controlling Organic HAP Emissions from Transfer Racks that Are Subject to Subpart FFFF

Note: Use this checklist for each transfer rack that is subject to subpart FFFF. A "yes" response to a question means compliance with that requirement, and a "no" response means noncompliance with the requirement. If a question is not applicable, check the "N/A" box.

I. General Identification

1. Transfer Rack Identification: _____

2. What is the Group Status of the transfer rack (determined according to Figure 7-1):

   ☐ Group 1, or

   Continue with this checklist.

   ☐ Group 2

   No control is required, but go to item II.1 in this checklist to determine compliance with recordkeeping requirements.

3. Which type of emission limit applies to the organic HAP emissions from the Group 1 transfer rack? (check all that apply)

   ☐ Use a flare? *(go to checklists in Tables 9-1, 9-2, and 10-1)*

   Note: Halogenated vent streams may not be controlled using a flare, unless a halogen reduction device before the flare reduces the mass emission rate of halogen atoms in organic compounds to less that 0.45 kg/hr. See item "4" in this checklist.

   ☐ Reduce organic HAP emissions by ≥98 percent in a control device or to less than 20 ppmv as organic HAP or TOC using one or more of the following add-on devices:

   Note: Also see item "4" in this checklist if the transfer rack emits a halogenated vent stream that is controlled with a combustion device.

   ☐ A thermal incinerator? (go to checklists in Tables 9-1, 9-2, and 10-2)

   ☐ A catalytic incinerator? (go to checklists in Tables 9-1, 9-2, and 10-3)

   ☐ A boiler or process heater with a capacity less than 44 MW that does not have the emission stream introduced with the primary fuel? (go to checklists in Tables 9-1, 9-2, and 10-4).

   ☐ A boiler or process heater with a capacity greater than 44 MW or that has the vent stream introduced with the primary fuel? (go to checklists in Tables 9-1, 9-2, and 10-5)

   ☐ A carbon adsorber? (go to checklists in Tables 9-1, 9-2, and 10-6).

Table 7-1. (continued)

I. General Identification

☐ An absorber? (go to checklists in Tables 9-1, 9-2, and either 10-7 or 10-10)

☐ A condenser? (go to checklists in Tables 9-1, 9-2, and 10-8)

☐ Another type of control device? (go to checklists in Tables 9-1, 9-2, and 10-9)

☐ Vent emissions to a fuel gas system or process? (the owner or operator must submit a statement of connection in the notification of compliance status report; go to Table 12-1)

☐ Vapor balance to the storage tank of origin (or to another tank connected by a common header)? (go to item "II.2" in this checklist)

4. If halogenated vent streams from the transfer rack are controlled using a combustion device, are additional controls that meet either of the following requirements also used: *See definition of "halogenated vent stream" in §63.2550(i).* ☐ Y ☐ N/A ☐ N

   (a) Is a halogen reduction device used before the combustion device to reduce the halogen atom mass emission rate to ≤0.45 kg/hr or to a concentration ≤20 ppmv, or (go to the appropriate checklist in Section 10; for example, go to Table 10-10 if the halogen reduction device is a scrubber)

   (b) Is a halogen reduction device used after the combustion device to reduce hydrogen halide and halogen HAP emissions by ≥99 percent, to ≤0.45 kg/hr, or to a concentration ≤20 ppmv? (go to the appropriate checklist in Section 10; for example, go to Table 10-10 if the halogen reduction device is a scrubber)

   Note: This option in item "4.b" is not allowed when the halogenated vent stream is controlled with a flare.

II. Review of Records

1. For both Group 1 and Group 2 transfer racks, are records kept of the following information as part of an operating scenario: *§63.2525(b)*

   (a) Design and actual throughput of the transfer rack? ☐ Y ☐ N/A ☐ N

   (b) Weight percent HAP of liquid loaded? ☐ Y ☐ N/A ☐ N

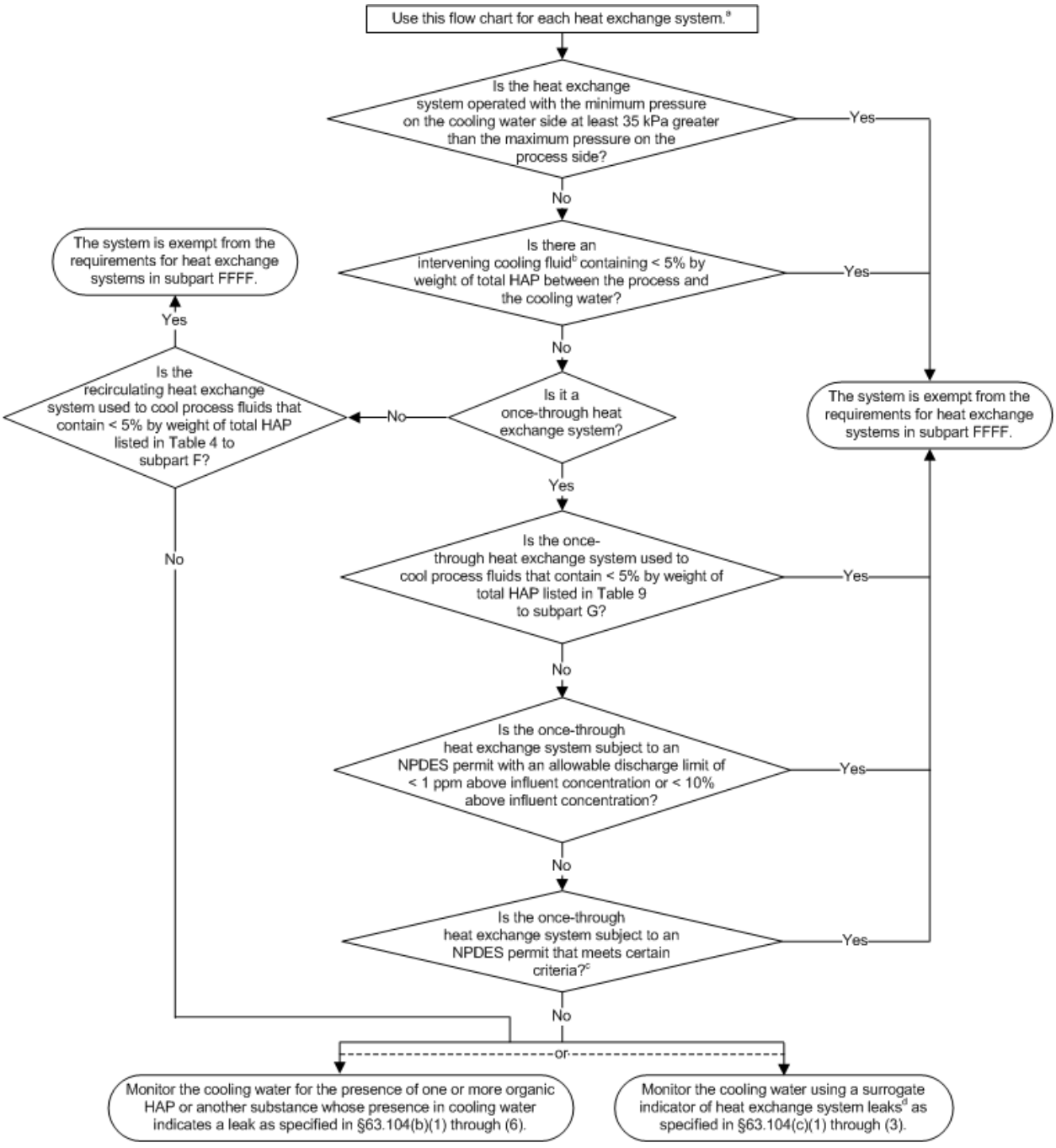
   (c) Annual rack-weighted average HAP partial pressure? ☐ Y ☐ N/A ☐ N

Table 7-1. (continued)

II. Review of Records			
2. If emissions from a Group 1 transfer rack are controlled by vapor balancing, is the vapor balancing system designed and operated to collect organic HAP emissions displaced from tank trucks and railcars during loading and route them to the originating storage tank or another storage tank connected by a common header? *Table 5 to subpart FFFF*	☐ Y	☐ N/A	☐ N
III. Note All Deficiencies			

8.0 Heat Exchange Systems

This section contains a flowchart of applicability and control requirements and an inspection checklist for heat exchange systems. Use Figure 8-1 to determine if a heat exchange system is subject to the leak monitoring requirements in §63.104 of subpart G (as referenced from §63.2490 and Table 10 in subpart FFFF). Use the checklist in Table 8-1 to determine compliance with the monitoring options.



[a] 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.

[b] This intervening fluid serves to isolate the cooling water from the process fluid and the intervening fluid is not sent through a cooling tower or discharged.

[c] The NPDES permit must (a) require monitoring to detect a leak of process fluids into cooling water; (b) specify the normal range to maintain; (c) require monitoring no less frequently than monthly for the first six months and quarterly thereafter; and (d) require reporting and correction when monitoring is not within the normal range.

[d] Surrogate indicators that could be used to develop an acceptable monitoring program are ion specific electrode monitoring, pH, conductivity or other representative indicators.

Figure 8-1. Applicability and work practice standards for heat exchange systems.

Table 8-1. Compliance Checklist for Heat Exchange Systems Requiring Leak Detection

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

I. Review of Records

1. Do records indicate that heat exchange systems are monitored for leaks by either of the following (provided they are not exempt from monitoring for reasons specified in Figure 8-1):	☐ Y	☐ N	☐ N/A
(a) Monitoring for the presence of total HAP, total volatile organic compounds, total organic carbon, one or more speciated HAP, or other representative substances as indicators of a leak, or *§63.104(b) introductory paragraph*			
(b) Monitoring using a surrogate indicator of leaks? *§63.104(c) introductory paragraph*			
2. When monitoring of a surrogate indicator of heat exchange system leaks is used, is a monitoring plan available that contains all of the following: *§63.104(c)(1)*			
(a) The procedures that will be used to detect leaks of process fluids into cooling water?	☐ Y	☐ N	☐ N/A
(b) A description of the parameter(s) or condition(s) to be monitored?	☐ Y	☐ N	☐ N/A
(c) An explanation of how the selected parameter(s) or condition(s) will reliably indicate the presence of a leak?	☐ Y	☐ N	☐ N/A
(d) The parameter level(s) or condition(s) that constitute a leak, including supporting data and calculations?	☐ Y	☐ N	☐ N/A
(e) The monitoring frequency (which must be no less frequent than monthly for the first 6 months and quarterly thereafter?	☐ Y	☐ N	☐ N/A
(f) The records that will be maintained?	☐ Y	☐ N	☐ N/A
3. If monitoring results indicate a leak is detected, are records of all of the following available: *§63.104(d)(1), (f)(1)(i), and (f)(1)(ii)*			
(a) Monitoring records identifying the leak?	☐ Y	☐ N	☐ N/A
(b) Date the leak was detected?	☐ Y	☐ N	☐ N/A
(c) If the results were determined to be due to a condition other than a leak, the basis for that determination?	☐ Y	☐ N	☐ N/A
4. If the results are confirmed to be a leak, are records of all of the following available: *§63.104(f)(1)(iii) and (iv)*			
(a) Date(s) of efforts to repair the leak?	☐ Y	☐ N	☐ N/A
(b) The method or procedure used to confirm repair of the leak?	☐ Y	☐ N	☐ N/A

Table 8-1. (continued)

I. Review of Records

(c) Date the repair was confirmed?	☐ Y	☐ N	☐ N/A
5. If repair of a leak has been delayed, do records indicate either of the following, along with a schedule for completing the repair as soon as practical: *§63.104(e)(2)(i) and (ii)*	☐ Y	☐ N	☐ N/A
(a) The basis of a determination that a shutdown for repair would cause greater emissions than the emissions likely to result from delaying repair, or			
(b) Evidence that the necessary parts or personnel were not available to make the repair?			
Note: Documentation is not necessary if the leaking equipment is isolated from the process, or if a shutdown is scheduled within the next 2 months after determination that a delay of repair is necessary. §63.104(e) introductory text and (e)(1)			
6. Are all records kept for at least 5 years? *§63.10(b)(1)*	☐ Y	☐ N	

II. Note All Deficiencies

9.0 Closed-Vent Systems

This section contains checklists for closed-vent systems. Table 9-1 contains a checklist for the bypass line provisions, and Table 9-2 contains a checklist for leak detection of closed-vent systems. The checklists for process vents, storage tanks, transfer operations, and wastewater in Sections 3, 4, 5, and 7 refer to the checklists in this section when the provisions regarding bypass lines and leak detection of closed-vent systems apply. The checklists also apply if emissions from equipment leaks are directed through a closed-vent system to a flare. The checklists do not apply to systems that route vapors to recovery devices for continuous process vents or process condensers for batch process vents because these recovery devices and process condensers are part of the process, and the system of piping, ductwork, and connections would not meet the definition of a closed-vent system. The checklists do not apply to closed-vent systems for equipment leaks (except for routing emissions to a flare) because the options addressed by checklists in section 6 apply. The checklists also do not apply to equipment that handles in-process liquid streams that meet the criteria of §§63.2485(l) and 63.149.

Table 9-1. Compliance Checklist for Bypass Line Provisions for Closed-vent Systems

Note: Complete this checklist for each closed-vent system that contains a bypass line that could divert a vent stream away from a control device to the atmosphere. A "yes" response to a question indicates compliance with that requirement, and a "no" response indicates noncompliance with the requirement. If a question is not applicable, check the "N/A" box.

System Identification: _____

I. Review of Records

Note: The items in this checklist do not apply to low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes.

1. Are all of the following records available for a bypass line that is equipped with a flow indicator: *§§63.998(d)(1)(ii)(A) and 63.148(i)(3)(i)*

   (a) Hourly records of whether the flow indicator in the bypass line was operating? ☐ Y ☐ N ☐ N/A

   (b) Whether a diversion was detected at any time during each hour? ☐ Y ☐ N ☐ N/A

   (c) The times of all periods when the vent stream was diverted from the control device? ☐ Y ☐ N ☐ N/A

   (d) The times of all periods when the flow indicator was not operating? ☐ Y ☐ N ☐ N/A

2. Are all of the following records available for a bypass line that is equipped with a seal mechanism: *§§63.998(d)(1)(ii)(B) and 63.148(i)(3)(ii)*

   (a) Occurrence of each monthly inspection of the seals or closure mechanism? ☐ Y ☐ N ☐ N/A

   (b) All periods when the seal mechanism was broken, the bypass line valve position was changed, or the key to unlock the bypass line valve was checked out? ☐ Y ☐ N ☐ N/A

3. Are all records kept for at least 5 years? *§63.10(b)(1)* ☐ Y ☐ N

II. Visual Inspection

1. Is a flow indicator present at the entrance to any bypass line that could divert the vent stream flow away from the control device to the atmosphere, or are all bypass line valves sealed in a closed position (e.g., with a car seal or lock-and-key configuration)? ☐ Y ☐ N ☐ N/A

Table 9-1. (continued)

III. Note All Deficiencies

Table 9-2. Compliance Checklist for Closed-Vent Systems

Note: Complete this checklist for each closed-vent system. A "yes" response to a question indicates compliance with that requirement, and a "no" response indicates noncompliance with the requirement. If a question is not applicable, check the "N/A" box.

Equipment Identification: _____

I. Review of Records

Note: This checklist does not apply to closed-vent systems that are operated under negative pressure. §§63.983(a), 63.133(b)(4), 63.134(b)(5), 63.135(d)(4), 63.136(b)(4), and 63.137(b)(4)

1. Are records kept that identify all parts of closed-vent systems that are designated as either unsafe-to-inspect or difficult-to-inspect? *§§63.998(d)(1)(i) and 63.148(i)(1) and (2)*	☐ Y	☐ N	☐ N/A
2. For equipment that is designated as difficult to inspect, is a written plan kept that describes the actual monitoring frequency that will be used (and is at least once every five years)? *§§63.983(b)(3)(ii), 63.998(d)(1)(i), and 63.148(h)(2) and (i)(1)*	☐ Y	☐ N	☐ N/A
3. For equipment that is designated as unsafe to inspect, is a written plan kept that indicates equipment will be inspected as frequently as practicable during safe-to-inspect times (but not more frequently than annually)? *§§63.983(b)(2)(ii), 63.998(d)(1)(i), and 63.148(g)(2) and (i)(1)*	☐ Y	☐ N	☐ N/A
4. For each annual inspection during which a leak was detected, was all of the following information recorded and reported:[a] *§§63.998(d)(1)(iii) and 63.148(i)(4)*			
(a) Identification information of the leaking closed-vent system?	☐ Y	☐ N	☐ N/A
(b) Name or initials of operator conducting the inspection?	☐ Y	☐ N	☐ N/A
(c) Instrument identification number, if instrument monitoring applies?	☐ Y	☐ N	☐ N/A
(d) Date the leak was detected?	☐ Y	☐ N	☐ N/A
(e) Date of the first attempt to repair the leak?	☐ Y	☐ N	☐ N/A
(f) Maximum instrument reading after the leak is repaired or determined to be non-repairable?	☐ Y	☐ N	☐ N/A
(g) Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered?	☐ Y	☐ N	☐ N/A
(h) Name or initials of person who decides repairs cannot be made without a shutdown? *§63.148(i)(4)(v)*	☐ Y	☐ N	☐ N/A
Note: This record is required only if the closed-vent system is used to convey wastewater emissions.			

Table 9-2. (continued)

I. Review of Records

(i) Expected date of successful repair if not repaired within 15 days? *§63.148(i)(4)(vi)* ☐ Y ☐ N ☐ N/A

Note: This record is required only if the closed-vent system is used to convey wastewater emissions.

(j) Dates of shutdowns that occur while the equipment is unrepaired? *§63.148(i)(4)(vii)* ☐ Y ☐ N ☐ N/A

Note: This record is required only if the closed-vent system is used to convey wastewater emissions.

(k) Date of successful repair of the leak? ☐ Y ☐ N ☐ N/A

5. For each inspection during which no leaks were detected, were records kept of all of the following:[a] *§§63.998(d)(1)(iv) and 63.148(i)(5) and (6)*

(a) Record that the inspection was performed? ☐ Y ☐ N ☐ N/A

(b) Date of the inspection? ☐ Y ☐ N ☐ N/A

(c) Statement that no leaks were found? ☐ Y ☐ N ☐ N/A

6. Are all records kept for at least 5 years? *§63.10(b)(1)* ☐ Y ☐ N

II. Note All Deficiencies

[a] Annual **visual inspections** for visible, audible, or olfactory indications of leaks are required for closed-vent systems that are constructed of hard-piping. Annual **instrument monitoring** using Method 21 of 40 CFR part 60, Appendix A, is required for closed-vent systems constructed of duct work. *§63.983(b)(1)(i)(B) and (ii)*