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INSPECTION MANUAL FOR THE HAZARDOUS ORGANIC NESHAP (HON)

U.S. Environmental Protection Agency
Chemical, Commercial Services, and Municipal Division
Washington, D.C. 20460

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SECTION 1
PURPOSE OF THIS MANUAL

This manual is consistent with the promulgated hazardous organic national emission standard for hazardous air pollutants (hazardous organic NESHAP, or HON). The final rule was published in the Federal Register on April 22, 1994 (59 FR 19453).

Section 112 of the Clean Air Act directed the U. S. Environmental Protection Agency (EPA) to set national emission standards for hazardous air pollutants (NESHAP). Section 112(b) listed 189 hazardous air pollutants (HAP's). Section 112 required the EPA to publish a list of categories of sources that emit HAP's and to develop regulations for these source categories. The synthetic organic chemical manufacturing industry (SOCMI) was subsequently listed as a source category emitting HAP's.

The hazardous organic NESHAP (HON) regulates emissions of 112 organic HAP's from the SOCMI. The regulation can be found in the Code of Federal Regulations (40 CFR Part 63) in Subparts F, G, H, and I. Subpart F contains provisions for determining applicability of the HON, definitions, and general procedures for testing, compliance, reporting, and recordkeeping. The specific control, monitoring, reporting, and recordkeeping requirements are stated in Subpart G for process vents, transfer operations, storage vessels, and wastewater streams, and in Subpart H for equipment leak emissions. Subpart I provides the applicability criteria for non-SOCMI processes subject to the negotiated regulation for equipment leaks and requires compliance with Subpart H.

The purpose of this manual is to assist federal, state, and local regulatory personnel with enforcement of the process vent, transfer operation, storage vessel, and wastewater provisions of Subpart G. The emissions averaging provisions of Subpart G and the equipment leak provisions of Subpart H are not included. Because the process vents provisions of the HON are similar to new source performance standards (NSPS) for SOCMI air oxidation reactors and distillation operations, this manual will also be useful for enforcement of those NSPS. While this manual does not describe the NSPS in detail, an appendix identifies key differences between the HON process vents provisions and the NSPS.

This manual is organized in eight sections. Section 2 provides guidelines for preparing for an inspection. Section 3 is an overview of the requirements of the rule, and Section 4 discusses applicability of the rule. Sections 5 through 8 provide a detailed description of the requirements of the rule for process vents, transfer operations, storage vessels, and wastewater streams. Tables summarizing monitoring, recordkeeping, and reporting requirements are included along with compliance checklists.

Seven appendices are included in this manual. Appendix A lists Code of Federal Regulations citations for the HON, the NESHAP General Provisions, test methods required by the HON, and the air oxidation and distillation NSPS. This will allow inspectors to easily locate the complete text of these rules. Appendix B contains a comparison of the HON process vents provisions with those in the NSPS for distillation, air oxidation, and reactors. Appendix C illustrates the calculation of total resource effectiveness (TRE) index value for process vents. The TRE index value is used to determine whether process vent emissions must be controlled. Appendix D contains logic flow diagrams for the wastewater provisions. Appendices E and F list the information on wastewater that must be reported in the Implementation Plan and Notification of Compliance Status, respectively. Finally, Appendix G provides additional blank copies of the checklists presented in Sections 5 through 8. The forms in this appendix can be reproduced and used for inspections.

SECTION 2
PREPARING FOR THE INSPECTION

Compliance with the HON can be determined by review of records and reports, review of performance tests, and visual inspections using the methods and procedures specified in the rule. As required by the rule, testing, monitoring, and inspections are to be carried out by the owner or operator with records kept for 5 years. Therefore, the local, state, or federal inspector can determine compliance by the review of plant records, along with spot inspections to verify the operation, performance, and condition of the control equipment.

Prior to conducting the inspection, the inspector should become familiar with the regulation, search the EPA, state, or local agency files for information on the facility, and review all relevant information. The HON requires that an Implementation Plan or operating permit application be submitted by each facility that is subject to the regulation. These documents specify which emission points are subject to the HON and what type of control is applied to each emission point. The inspector can use these documents to develop a list of control devices to inspect. The most recent periodic report should provide information on the facility's compliance status. A review of files will help the inspector become familiar with the operation of the facility and the most recent compliance history. The compliance history and prior inspections will help the inspector prioritize areas of concern for the upcoming inspection. For example, if a leaking tank roof was identified in the last inspection, the inspector would want to check the facility records to verify that the tank roof was repaired in the allotted amount of time. The inspector may also want to visually inspect the tank to verify that it has been repaired.

The inspector may also need to gather safety and emissions detection equipment prior to the inspection. Some facilities will require inspectors to wear hard hats, safety glasses, and steel-toed shoes during their visual inspection. If the inspector will need to do any climbing to inspect equipment such as a tank roof, additional safety equipment may be necessary. As detailed in the checklist in Section 7.4, respiratory protection may be needed for storage vessel inspections, and inspectors should consult documents addressing safety issues prior to conducting internal inspections of storage vessels. The inspector will also need a portable VOC analyzer to conduct Method 21 tests and uniform probes for measuring gaps in storage tank roofs.

Because the review of records is the primary means of determining compliance, the local, state, or federal inspector should notify the facility management prior to inspection. This gives the facility personnel enough time to gather relevant records and have them organized and available for review. The facility should also provide a map and/or process flow diagrams to the inspector.

The inspection consists of a review of records and reports kept by the plant and a visual inspection of plant equipment. Sections 5.4, 6.4, 7.4, and 8.4 provide inspection checklists for process vents, transfer operations, storage vessels, and wastewater. The checklists will enable the inspector to systematically review the plant records and reports. Each checklist provides a series of yes and no statements. A "yes" response to all of the statements indicates compliance with the standard. However, there are a few statements in the checklists that can be checked "no", and the facility would still be in compliance. These exceptions are noted in the checklists. Appendix G is a collection of the process vent, transfer operation, storage vessel, and wastewater inspection checklists. The inspector should copy the checklists in the appendix prior to each inspection.

Inspectors should conduct visual inspections to verify that the records and reports provided by the facility are accurate. Visual inspections will also enable the inspector to assess the condition of the control equipment. When making visual inspections, the checklists, along with plant drawings and specifications, should be used. Notations should be made on the checklists if there are discrepancies between the plant records and reports and visual inspections. Control equipment should be checked for obvious leaks and lack of maintenance.

SECTION 3

OVERVIEW OF THE HAZARDOUS ORGANIC NESHAP

The HON regulates emissions from five kinds of emission points at SOCMI sources: (1) process vents, (2) transfer operations, (3) storage vessels, (4) air emissions from wastewater streams and wastewater collection and treatment operations, and (5) equipment leaks. The organization of the regulation is shown in Table 3-1.

3.1 SUBPART F

Section 63.100 contains provisions to determine which chemical manufacturing processes at a plant are subject to the HON. Table 1 of Subpart F contains a list of SOCMI chemicals, and Table 2 contains a list of organic HAP's regulated by the HON. In general, if a process both (1) produces one of the listed SOCMI chemicals <u>and</u> (2) either uses as a reactant or produces a listed organic HAP in the process, then that process is subject to the HON. Section 63.100 contains additional details for determining applicability in situations where a process makes multiple products. If a chemical manufacturing process is subject to the HON, then the emission points associated with that process are regulated. Details on how to determine which storage vessels, transfer racks, and distillation units are part of a chemical manufacturing process are also contained in §63.100.

Definitions of terms used in Subparts F, G, and H are contained in §63.101. Sections 63.102 and 63.103 contain general compliance, recordkeeping, and reporting provisions and override certain portions of the NESHAP General Provisions (40 CFR 63, Subpart A). These sections specify general performance test conditions, require records to be maintained for 5 years, and clarify where reports required under Subparts G and H are to be sent. Section 63.104 contains requirements for heat exchange systems and §63.105 contains requirements for maintenance wastewater.

3.2 SUBPART G

Subpart G contains the standard for process vents, transfer operations, storage vessels, and wastewater. It includes emissions averaging provisions. The first section of Subpart G (§63.110) contains applicability provisions that clarify potential overlaps between process vents, storage, wastewater, and equipment leaks. The second section (§63.111) contains definitions.

Section 63.112 provides an equation representing a site-specific allowable overall emission limit for each source. The "source" is the combination of all emission points subject to the HON at a plant site (contiguous area under common control). The standard requires sources to meet the allowable emission limit; however, the equation in §63.112 is not used to determine compliance with the

TABLE 3-1. ORGANIZATION OF HON

Section Number[a]	Title of Section
Subpart F – National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry	
63.100	Applicability and designation of source.
63.101	Definitions.
63.102	General standards.
63.103	General compliance, reporting, and recordkeeping provisions.
63.104	Heat exchange system requirements.
63.105	Maintenance wastewater requirements.
63.106	Delegation of authority.
Subpart G – National Emission Standards for Organic Hazardous Air Pollutants from Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater.	
63.110	Applicability.
63.111	Definitions.
63.112	Emission standards.
63.113	Process vent provisions - reference control technology.
63.114	Process vent provisions - monitoring requirements.
63.115	Process vent provisions - methods and procedures for process vent group determination.
63.116	Process vent provisions - performance test methods and procedures to determine compliance.
63.117	Process vent provisions - reporting and recordkeeping requirements for group and TRE determinations and performance tests.
63.118	Process vent provisions - periodic reporting and recordkeeping requirements.
63.119	Storage vessel provisions - reference control technology.
63.120	Storage vessel provisions - procedures to determine compliance.
63.121	Storage vessel provisions - alternative means of emission limitation.
63.122	Storage vessel provisions - reporting.
63.123	Storage vessel provisions - recordkeeping.
63.124	Reserved.
63.125	Reserved.

(continued)

TABLE 3-1. ORGANIZATION OF HON

Section Number[a]	Title of Section
63.126	Transfer operations provisions - reference control technology.
63.127	Transfer operations provisions - monitoring requirements.
63.128	Transfer operations provisions - test methods and procedures.
63.129	Transfer operations provisions - reporting and recordkeeping for performance tests and notification of compliance status.
63.130	Transfer operations provisions - periodic reporting and recordkeeping.
63.131	Process wastewater provisions - flow diagrams and tables.
63.132	Process wastewater provisions - general.
63.133	Process wastewater provisions - wastewater tanks.
63.134	Process wastewater provisions - surface impoundments.
63.135	Process wastewater provisions - containers.
63.136	Process wastewater provisions - individual drain systems.
63.137	Process wastewater provisions - oil-water separators.
63.138	Process wastewater provisions - treatment processes.
63.139	Process wastewater provisions - control devices.
63.140	Process wastewater provisions - delay of repair.
63.141	Reserved.
63.142	Reserved.
63.143	Process wastewater provisions - inspections and monitoring of operations.
63.144	Process wastewater provisions - test methods and procedures for applicability and Group 1/Group 2 determination.
63.145	Process wastewater provisions - test methods and procedures to determine compliance.
63.146	Process wastewater provisions - reporting.
63.147	Process wastewater provisions - recordkeeping.
63.148	Leak inspection provisions.
63.149	Reserved.
63.150	Emissions averaging provisions.
63.151	Initial Notification and Implementation Plan.
63.152	General reporting and continuous records.

(continued)

TABLE 3-1. ORGANIZATION OF HON

Section Number[a]	Title of Section
Subpart H – National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.	
63.160	Applicability and designation of sources.
63.161	Definitions.
63.162	Standards: General.
63.163	Standards: Pumps in light liquid service.
63.164	Standards: Compressors.
63.165	Standards: Pressure relief devices in gas/vapor service.
63.166	Standards: Sampling connection systems.
63.167	Standards: Open-ended valves or lines.
63.168	Standards: Valves in gas/vapor service and in light liquid service.
63.169	Standards: Pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service.
63.170	Standards: Surge control vessels and bottoms receivers.
63.171	Standards: Delay of repair.
63.172	Standards: Closed-vent systems and control devices.
63.173	Standards: Agitators in gas/vapor service and in light liquid service.
63.174	Standards: Connectors in gas/vapor service and in light liquid service.
63.175	Quality improvement program for valves.
63.176	Quality improvement program for pumps.
63.177	Alternative means of emission limitation: General.
63.178	Alternative means of emission limitation: Batch processes.
63.179	Alternative means of emission limitation: Enclosed-vented process units.
63.180	Test methods and procedures.
63.181	Recordkeeping requirements.
63.182	Reporting requirements.
Subpart I – National Emission Standards for Organic Hazardous Air Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks.	
63.190	Applicability and designation of source.
63.191	Definitions.
63.192	Standard.
63.193	Delegation of Authority.

[a] Section numbers of 40 CFR Part 63.

standard, and source owners or operators are not required to calculate their allowable emission limit. As provided in §63.112(c), the owner or operator of an existing source must demonstrate compliance using one or both of two approaches: the point-by-point compliance approach or the emissions averaging approach. As provided in §63.112(d), the owner or operator of a new source must demonstrate compliance using the point-by-point approach. Emissions averaging is not allowed for new sources.

Under the point-by-point approach, the owner or operator would apply control to each "Group 1" emission point. A Group 1 emission point is a point which meets the control applicability criteria, and the owner or operator must reduce emissions to specified levels; whereas a Group 2 emission point is one that does not meet the criteria and no emission reduction is required. These Group 1 and Group 2 emission points are defined in §63.111. Owners or operators selecting the point-by-point compliance approach must comply with the process vent provisions in §63.113 through §63.118, the storage vessel provisions in §63.119 through §63.123, the transfer operation provisions in §63.126 through §63.130, and the wastewater provisions in §63.131 through §63.147. These sections include applicability criteria, emission limits, equipment and work practice standards, testing, monitoring, recordkeeping, and reporting provisions. The specific criteria for Group 1/Group 2 determinations and required control levels for process vents, transfer operations, storage vessels, and wastewater streams are listed in Sections 5 through 8 of this report.

Under the emissions averaging approach, an owner or operator may elect to control different groups of emission points within the source to different levels than specified in §63.113 through §63.147, as long as the overall emissions do not exceed the overall allowable emission level. An owner or operator can choose not to control a Group 1 emission point (or to control the emission point with a less effective control technique) _if_ the owner or operator over controls another emission point within the source. Emission "debits" (in Mg of HAP emissions) are generated for each Group 1 emission point that is uncontrolled or under-controlled. Emission "credits" (also in Mg) are generated for over-controlled points. Credits can be generated if a Group 2 point is controlled, or if a Group 1 point is controlled by a distinct technology that EPA approves as having a greater efficiency than the level of control required for Group 1 points. Credits have to equal or exceed debits for a source to be in compliance. Section 63.150 of the rule contains detailed equations for calculating debits and credits.

3.3 SUBPART H

Subpart H contains the standard for equipment leaks. Equipment regulated includes pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and instrumentation systems in organic HAP service. A piece of equipment is in organic HAP service if it contains or contacts a fluid that is at least 5 percent organic HAP by weight.

The applicability of Subpart H and definitions are contained in §63.160 and §63.161, respectively. Sections 63.162 through 63.179 contain the standards for the various kinds of equipment and alternative means of emission limitation. These include leak detection and repair provisions and other control requirements. Sections 63.180 through 63.182 contain test methods and procedures and reporting and recordkeeping provisions.

3.4 SUBPART I

Subpart I provides the applicability criteria for the non-SOCMI processes subject to the negotiated regulation for equipment leaks. Regulated equipment is the same as that for Subpart H: pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and instrumentation systems in organic HAP service. The applicability criteria for Subpart I and the definitions are specified in §63.190 and §63.191, respectively. Section 63.193 contains the standard which basically requires compliance with Subpart H.

3.5 GENERAL REPORTING

Sections 63.151 (Initial Notification and Implementation Plan) and 63.152 (General Reporting) of Subpart G require sources to submit the following five types of reports:

1. Initial Notification,
2. Implementation Plan (if an operating permit application has not been submitted),
3. Notification of Compliance Status,
4. Periodic Reports, and
5. other reports.

Sources subject to the HON are also subject to the NESHAP General Provisions (40 CFR Part 63 Subpart A), which include additional reporting requirements. Table 3 of Subpart F of the HON identifies which parts of the General Provisions apply to HON sources.

Records of reported information and other information necessary to document compliance with the regulation are required to be kept for 5 years. A few records pertaining to equipment design would be kept for the life of the equipment.

3.5.1 Initial Notification

The purpose of the Initial Notification is to establish an early dialogue between the source and the regulatory agency, allowing both to plan for compliance activities. The notice is due August 20, 1994 for existing sources. For a new source with an initial startup on or after July 21, 1994, the application for approval of construction or reconstruction required by §63.5(d) of subpart A must be submitted instead of the Initial Notification. This application is due as soon as practicable before commencement of construction or reconstruction but no earlier than July 21, 1994.

For a new source with an initial startup before July 21, 1994, the Initial Notification is due on July 21, 1994 but the application described in §63.5(d) of subpart A is not required.

The notification must list the chemical manufacturing processes at the source that are subject to Subpart G, and which provisions may apply (e.g., process vents, transfer operations, storage vessel, and/or wastewater provisions). A detailed identification of emission points is not required. The Initial Notification must include a statement of whether the source can achieve compliance by the specified compliance date, but a request for a compliance extension may be submitted later (by the date the Implementation Plan is due).

3.5.2 Implementation Plan

The Implementation Plan details how the source plans to comply with Subpart G. The plan identifies Group 1 and Group 2 emission points, and specifies the control technique that will be applied to each Group 1 emission point. Implementation Plans are only required for sources that have not submitted an operating permit application. An operating permit application would contain all of the information required in the Implementation Plan, therefore, it would be redundant to require sources to submit both.

For points included in emission averages, existing sources must submit the Implementation Plan 18 months prior to the compliance date; for emission points not included in an emissions average, the Implementation Plan is due 12 months prior to the compliance date. For a new source with an initial startup on or after July 21, 1994, the Implementation Plan must be submitted with the application for approval of construction or reconstruction (i.e., as soon as practicable before commencement of construction or reconstruction but no earlier than July 21, 1994).

For a new source with an initial startup before July 21, 1994, the Implementation Plan is due July 21, 1994.

3.5.3 Notification of Compliance Status

The Notification of Compliance Status must be submitted within 150 days after the source's compliance date. The date of compliance for existing sources is 3 years after the date of promulgation. The date of compliance for new sources is the date of promulgation or the startup date, whichever is later. The Notification of Compliance Status contains the information necessary to demonstrate that compliance has been achieved, such as the results of performance tests for process vent and transfer control devices, process vents TRE determinations, and monitoring system performance evaluations.

Sources with a large number of emission points are likely to submit results of multiple performance tests. For each test method used for a particular kind of emission point (e.g., a process vent), one complete test report must be submitted. For additional tests performed for the same kind of emission point using the same method, the results must be submitted, but the complete test reports may be kept at the plant.

Another type of information to be included in the Notification of Compliance Status is the specific range for each monitored parameter for each emission point, and the rationale for why this range indicates proper operation of the control device. (If this range has already been established in the operating permit, it need not be repeated in the Notification of Compliance Status). As an example, for a process vent controlled by an incinerator, the notification would include the site-specific minimum firebox temperature that will ensure proper operation of the incinerator, and the data and rationale to support this minimum temperature.

3.5.4 Periodic Reports

Periodic Reports are required to demonstrate that the standards continue to be met and that control devices are operated and maintained properly. Generally, Periodic Reports would be submitted semiannually. However, if monitoring data are insufficient, or if monitoring results show that the parameter values for an emission point are outside the established range for more than the excused number of days specified in §63.152, the Administrator (or delegated regulatory authority) may request that the owner or operator submit quarterly reports for that emission point. After 1 year, the source can return to semiannual reporting, unless the regulatory authority requests continuation of quarterly reports.

Periodic Reports specify periods when the daily average values of continuously monitored parameters are outside the ranges established in the Notification of Compliance Status or operating permit. For some kinds of emission points and controls, periodic (e.g., monthly, quarterly, or annual) inspections or measurements are required instead of continuous monitoring. Records that such inspections or measurements were done must be kept; results are included in Periodic Reports only if a problem is found. Periodic reports may also include information on startups, shutdowns, and malfunctions if any occurred during the reporting period. Details of the information required are specified in §63.10(d)(5) of Subpart A.

The first periodic report is due no later than 8 months after the date the notification of compliance status is due. All other semiannual reports are due no later than 60 days after the end of each 6 month period. Quarterly reports, if required, are due 60 days after the end of each quarter.

3.5.5 Other Reports

There are a very limited number of other reports. Where possible, Subpart G is structured to allow all information to be reported in the semiannual (or quarterly) Periodic Reports. However, in a few cases, it is necessary for the source to provide information to the regulatory authority shortly before or after a specific event. For example, for storage vessels, notification prior to internal tank inspections is required to allow the regulatory authority the opportunity to have an observer present. The semi-annual start-up, shutdown, and malfunction reports may be submitted on the same schedule as the Periodic Reports.

3.6 USE OF CONTINUOUS MONITORING TO DETERMINE COMPLIANCE

This section summarizes the basic approaches for determining compliance for Group 1 emission points where continuous monitoring is required (i.e., process vents and transfer operations). As described in Sections 5.3 and 6.3 of this manual, performance tests and continuous monitoring of control device operating parameters are required for most kinds of devices used to control Group 1 process vents and transfer racks. Compliance with the 98 percent reduction or 20 ppmv outlet concentration requirement is determined by performance testing. Results of the tests are reported in the Notification of Compliance Status. Continuous parameter monitoring results are not used to determine compliance with the percent reduction or emission limit; however, monitoring results are used to determine compliance with operating requirements.

Each source must establish site-specific ranges for monitored parameters that will demonstrate proper operation of each control device for which continuous monitoring is required. These site-specific ranges can be set through performance testing supplemented by engineering assessments and manufacturers' recommendations (The performance test is not required to be conducted over the entire range of permitted parameter values). The justification for the site-specific range is included in the operating permit application or Notification of Compliance Status. The ranges are then incorporated in the sources' operating permit. Each source must continuously monitor and record the operating parameter(s) for each control device and report any daily average value of an operating parameter that is outside the established range as well as any days when insufficient monitoring data are collected. These excursions are reported in the quarterly or semiannual reports described in Section 3.5.4. If, during a reporting period, a monitored operating parameter is outside the established range or insufficient data are collected for more than the number of days specified in §63.152(c) of Subpart G, this is considered a violation of the operating permit requirements.

An owner or operator may request approval to use alternatives to continuous operating parameter monitoring, as allowed by §63.151(g) of Subpart G. Continuous monitoring is not required for storage vessels or wastewater streams. The compliance determination approaches for storage and wastewater are described in Sections 7.3.4 and 8.3.4 of this manual, respectively.

SECTION 4
APPLICABILITY OF THE RULE

Prior to an inspection, the first step is to determine which chemical manufacturing process units (CMPU's) are subject to the HON. The second step is to identify the equipment within those CMPU's. Next, the source must be designated as a new source or an existing source. The final step in determining the applicability of the rule is to determine which emission points within the CMPU satisfy the HON definitions of process vent, storage vessel, transfer rack, and wastewater stream. This chapter will explain in more detail the first three steps. The final step of determining applicability to specific emission points is addressed in the applicability checklists in sections 5 through 8.

4.1 IDENTIFICATION OF SOCMI PROCESS UNITS

For the HON to apply to a CMPU, the CMPU must meet three criteria. First, the CMPU must be a SOCMI unit, which means a SOCMI chemical in Table 1 of Subpart F is the primary product made in the unit. Second, organic HAP's regulated by the HON, which are listed in Table 2 of Subpart F, have to be used as a reactant or manufactured in the CMPU. Finally, the plant site where the CMPU is located has to be a major HAP source as defined in Section 112(a) of the Act, i.e., any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, considering controls, in the aggregate, 10 tons per year (tpy) or more of any hazardous air pollutant or 25 tpy or more of any combination of hazardous air pollutants.

Identification of the primary product of a CMPU may not be obvious. In the chemical manufacturing industry, most facilities consist of integrated operations involving some combination of refinery processes, SOCMI processes, polymers and resins processes, agricultural chemical production, pharmaceutical production, and specialty chemical production. Thus, a CMPU may produce multiple chemicals including valuable co-products and materials that will be used as reactants for downstream units. Also, some CMPU's are designed and operated as flexible operation units, that is, the equipment is used to make different chemicals at different times during the year. Determining applicability of a rule and what equipment is subject to the rule is complex and requires detailed information about the facility and its operations.

To address this complexity, the rule includes procedures for determining the primary product of a CMPU. The rule also exempts certain units and equipment from all requirements. Specifically, the HON does not apply to the following processes:

- Research and development facilities, even if they are located at the same plant site as the CMPU that is subject to the HON;

- Petroleum refining and ethylene process units, even if they supply feedstocks that are SOCMI chemicals to CMPU's that are subject to the HON;
- Equipment that is located with a CMPU subject to the HON but does not contain organic HAP's;
- CMPU's located in coke by-product recovery plants; and
- Solvent reclamation, recovery, or recycling operations at hazardous waste treatment, storage, and disposal facilities (TSDF) that are not part of a SOCMI unit.

Table 4-1 is a checklist for determining whether a CMPU is subject to the HON. Table 4-2 contains questions for determining the primary product and applicability for flexible operation units in particular. Table 4-3 addresses determination of primary product in all other cases.

4.2 DETERMINATION OF THE HON SOURCE

The source to which the HON applies is defined as the collection of the following emission points within SOCMI CMPU's:

- Process vents;
- Storage vessels;
- Transfer racks;
- Wastewater and the associated treatment residuals; and
- Pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, surge control vessels, and bottoms receivers (equipment leaks).

However, certain emission points are exempted from the rule. The HON does not apply to the following points:

- Vents from CMPU's that are designed and operated as batch operations;
- Stormwater from segregated sewers;
- Water from fire-fighting and deluge systems in segregated sewers;
- Spills;
- Water from safety showers;
- Vessels storing organic liquids that contain organic HAP's only as impurities;

TABLE 4-1. APPLICABILITY OF THE HON

1. Do total potential emissions at the plant site exceed 10 tpy of an individual HAP or 25 tpy of a combination of HAP's?

   ☐ Y Continue with this checklist.

   ☐ N The plant site is not subject to the HON.

2. Is the CMPU a petroleum refining process unit; an ethylene process unit; a solvent reclamation, recovery, or recycling operation at a hazardous waste TSDF[a] facility; an R&D[b] facility; or a process unit located in a coke by-product recovery plant?

   ☐ Y The CMPU is not subject to the HON.

   ☐ N Continue with this checklist.

3. Does the CMPU produce different intended products periodically throughout the year?

   ☐ Y The CMPU is a flexible operation unit. Skip to Table 4-2 to determine primary product and applicability.

   ☐ N Continue with this checklist.

4. Is the primary product of the CMPU, as determined in Table 4-3, a SOCMI chemical (listed in Table 1 of Subpart F)?

   ☐ Y Continue with this checklist.

   ☐ N The CMPU is not subject to the HON.

5. Does the CMPU use as a reactant or produce as a product, co-product, or by-product one of the organic HAP's listed in Table 2 of Subpart F?

   ☐ Y The CMPU is subject to the HON.

   ☐ N The CMPU is not subject to the HON.

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[a] TSDF = Treatment, storage, and disposal facility.
[b] R&D = Research and development.

TABLE 4-2. DETERMINATION OF PRIMARY PRODUCT AND APPLICABILITY FOR FLEXIBLE OPERATION UNITS[a]

If the CMPU produces different products periodically, determine:

- The product produced for the greatest annual operating time.

If all products are produced for the same amount of operating time, determine:

- The product with the greatest annual production on a mass basis.

1. Is the product determined in either case above listed in Table 1 of Subpart F?

   ☐ Y The primary product of the CMPU is a SOCMI chemical. Continue with this checklist.

   ☐ N The primary product of the CMPU is not a SOCMI chemical, and the CMPU is not subject to the HON.

2. Does the flexible operation unit use as a reactant or manufacture as a product, by-product, or co-product one or more of the organic HAP's listed in Table 2 of Subpart F?

   ☐ Y The CMPU is subject to the HON.[b]

   ☐ N The CMPU is not subject to the HON.

[a] Determination is based on the expected utilization for the five years following April 22, 1994 for existing sources and the five years after initial start-up for new sources.

[b] Determination of applicability must be reported in the Implementation Plan or as part of the operating permit application.

TABLE 4-3. DETERMINATION OF THE PRIMARY PRODUCT

List the intended products for the CMPU.

1. Does one of the intended products have the greatest annual design capacity on a mass basis (e.g., makes up >50% on a mass basis if two products are made)?

   □ Y This is the primary product of the CMPU.

   □ N Continue with this checklist.

2. If two or more of the intended products have the same annual design capacity on a mass basis, are any or all of the products listed in Table 1 of Subpart F?

   □ Y Any of the products that are listed in Table 1 of Subpart F may be designated the primary product of the CMPU. Thus, the primary product is a SOCMI chemical. Go to question 5 on Table 4-1.

   □ N The primary product is not a SOCMI chemical, and the CMPU is not subject to the HON.

- Loading racks, loading arms, and loading hoses that only transfer liquids containing organic HAP's only as impurities;
- Loading racks, loading arms, and loading hoses that vapor balance during all loading operations; and
- Equipment that is intended to operate in organic HAP service for less than 300 hours per calendar year.

In large chemical manufacturing facilities, it is often difficult to determine where one process unit ends and the next begins. For example, a storage tank may contain a chemical that is the product of one CMPU and the raw material for another CMPU. A transfer rack may load the products of several CMPU's, some that are SOCMI and others that are not. Distillation columns may be used to purify a product for sale or to remove inhibitors and impurities from a raw material. To clarify the applicability of the HON in these situations, the rule includes procedures for assigning storage vessels, transfer racks, and distillation columns to the appropriate CMPU. Tables 4-4 through 4-6 are checklists for these procedures.

4.3 DETERMINATION OF NEW SOURCE VS. EXISTING SOURCE

Once the HON source has been identified, it must be classified as a new or existing source because the rule contains different requirements for new versus existing sources. Many of these requirements pertain only to specific kinds of emission points and are therefore discussed in later sections of this document. This section addresses the definitions, MACT requirements, and compliance dates for new sources, existing sources, and other process changes.

4.3.1 New Sources

A source is subject to the HON's new source MACT requirements if it meets the criteria for a new source or a reconstructed source. A source would be a new source if all of the following criteria are true:

- An entire CMPU or group of CMPU's is being added (The addition of a single emission point, e.g., a storage tank, cannot be a new source regardless of the magnitude of emissions from the tank);
- The additional CMPU produces a SOCMI chemical listed in Table 1 of Subpart F and uses as a reactant or produces an organic HAP listed in Table 2 of Subpart F;
- The additional CMPU meets the definition of construction in §63.2 of Subpart A of 40 CFR Part 63 (i.e., fabrication, erection, or installation);
- Construction of the additional CMPU started after December 31, 1992; and

TABLE 4-4. ASSIGNMENT OF STORAGE VESSELS

1. Is the storage vessel used by a single CMPU?

   ☐ Y The storage vessel is assigned to that CMPU. Skip to question 4.

   ☐ N Continue with this checklist.

2. Is there a predominant use of the storage vessel?[a]

   a. Is the greatest input into the storage vessel from a CMPU located on the same plant site?

      ☐ Y The storage vessel is assigned to that CMPU. Skip to question 4.

      ☐ N Continue with this checklist.

   b. Does a CMPU at the same plant site receive the greatest output from the storage vessel?

      ☐ Y The storage vessel is assigned to that CMPU. Skip to question 4.

      ☐ N Continue with this checklist.

3. If the storage vessel is shared among CMPU's so that there is no single predominant use, is at least one of the CMPU's subject to the HON?

   ☐ Y The storage vessel may be assigned to any one of the CMPU's subject to the HON and the storage vessel is part of the HON source.

   ☐ N The storage vessel is not part of the HON source.[b]

4. Is the CMPU referred to in questions 1, 2a, or 2b subject to the HON?

   ☐ Y The storage vessel is part of the HON source.[b]

   ☐ N The storage vessel is not part of the HON source.[b]

---

[a] If the predominant use of the storage vessel varies from year to year, applicability of the HON is to be based on utilization between April 22, 1993 and April 22, 1994. This determination must be reported in the Implementation Plan or in the operating permit application.

[b] If there is a change in the material stored, applicability of the HON must be reevaluated.

TABLE 4-5. ASSIGNMENT OF TRANSFER RACKS

1. Is the transfer rack used by a single CMPU?

   ☐ Y The transfer rack is assigned to that CMPU. Skip to question 5.

   ☐ N Continue with this checklist for each individual loading arm or loading hose.

2. Is the loading arm or loading hose dedicated to the transfer of liquid organic HAP from a single unit?

   ☐ Y The loading arm or loading hose is assigned to that CMPU. Skip to question 5.

   ☐ N Continue with this checklist.

3. Does one CMPU provide the greatest amount of the material that is loaded by a loading arm or loading hose?[a]

   ☐ Y The loading arm or loading hose is assigned to that CMPU. Skip to question 5.

   ☐ N Continue with this checklist.

4. If the transfer rack is shared among CMPU's so that there is no single predominant use, is at least one of the CMPU's providing material to the loading arm or loading hose subject to the HON?

   ☐ Y The loading arm or loading hose may be assigned to any of the CMPU's subject to the HON and the loading arm or loading hose is part of the HON source.

   ☐ N The loading arm or loading hose is not part of the HON source.[b]

5. Is the CMPU referred to in questions 1, 2, or 3 subject to the HON?

   ☐ Y The loading rack, loading arm, or loading hose is part of the HON source.[b]

   ☐ N The loading rack, loading arm, or loading hose is not part of the HON source.[b]

[a] If the predominant use of the transfer rack varies from year to year, applicability of the HON is to be based on utilization between April 22, 1993 and April 22, 1994. This determination must be reported in the Implementation Plan or in the operating permit application.

[b] If there is a change in the material loaded, applicability of the HON must be reevaluated.

TABLE 4-6. ASSIGNMENT OF DISTILLATION UNITS

1. Aromex units

   a. Is the distillation unit part of the Aromex unit that produces benzene, toluene, and xylene?

      ☐ Y Go to question 1b.

      ☐ N Go to question 2.

   b. Does the vent stream contain greater than 0.005 weight percent total organic HAP's?

      ☐ Y The vents from the distillation unit are part of the HON source.

      ☐ N The vents from the distillation unit are not part of the HON source.

2. Hexane units.

   a. Is the distillation unit part of the unit that produces hexane?

      ☐ Y Go to question 2b.

      ☐ N Go to question 3.

   b. Does the vent stream contain greater than 0.005 weight percent total organic HAP's?

      ☐ Y The vents from the distillation unit are part of the HON source.

      ☐ N The vents from the distillation unit are not part of the HON source.

3. Cyclohexane units.

   a. Is the distillation unit part of the unit that produces cyclohexane?

      ☐ Y Go to question 3b.

      ☐ N Go to question 4.

   b. Does the vent stream contain greater than 0.005 weight percent total organic HAP's?

      ☐ Y The vents from the distillation unit are part of the HON source.

      ☐ N The vents from the distillation unit are not part of the HON source.

(continued)

TABLE 4-6. ASSIGNMENT OF DISTILLATION UNITS (continued)

4. Is the distillation unit used by a single CMPU?

   ☐ Y The distillation unit is assigned to that CMPU. Skip to question 7.

   ☐ N Continue with this checklist.

5. Is there a predominant use of the distillation unit?[a]

   a. Is the greatest input into the distillation unit from a CMPU located on the same plant site?

      ☐ Y The distillation unit is assigned to that CMPU. Skip to question 7.

      ☐ N Continue with this checklist.

   b. Does a CMPU at the same plant site receive the greatest output from the distillation unit?

      ☐ Y The distillation unit is assigned to that CMPU. Skip to question 7.

      ☐ N Continue with this checklist.

6. If the distillation unit is shared among CMPU's so that there is no single predominant use, is at least one of the CMPU's subject to the HON?

   ☐ Y The distillation unit may be assigned to any one of the CMPU's subject to the HON and the distillation unit is part of the HON source.

   ☐ N The distillation unit is not part of the HON source.[b]

7. Is the CMPU referred to in questions 4, 5a, or 5b subject to the HON?

   ☐ Y The distillation unit is part of the HON source.[b]

   ☐ N The distillation unit is not part of the HON source.[b]

[a] If the predominant use of the distillation unit varies from year to year, applicability of the HON is to be based on utilization between April 22, 1993 and April 22, 1994. This determination must be reported in the Implementation Plan or in the operating permit application.

[b] If there is a change in the material stored, applicability of the HON must be reevaluated.

The additional CMPU has the potential to emit 10 tpy or more of a single HAP or 25 tpy or more of any combination of HAP's.

A source would be a <u>reconstructed source</u> if all of the following were true:

- Changes to the source meet the definition of reconstruction in §63.2 of Subpart A of 40 CFR Part 63 (i.e., the source is changed to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost required to construct a comparable new source); and
- The reconstruction started after December 31, 1992.

4.3.2 <u>Existing Sources</u>

A source is subject to the HON's existing source MACT requirements if it does not meet the criteria in Section 4.3.1 for a new source or reconstructed source. Examples of existing sources could include CMPU's that were already in operation prior to December 31, 1992; addition of an individual emission point such as a storage tank or transfer rack; and addition of a CMPU with emissions below the 10 tpy/25 tpy threshhold.

4.3.3 <u>Other Process Changes</u>

As is common in any manufacturing facility, chemical plants are characterized by frequent changes in operations. Cost concerns, market needs, and product improvement efforts mean individual equipment and often entire process units, may be changed or added to an existing plant site. As defined in the HON, process changes include, but are not limited to:

- Changes in production capacity, feedstock type, or catalyst type; and
- Replacement, removal, or addition of recovery equipment.

Process changes do not include:

- Process upsets;
- Unintentional temporary process changes; and
- Changes that are within the equipment configuration and operating conditions documented in the Notification of Compliance Status.

Section 4.3.1 listed the criteria for determining whether additions or changes would be considered new or reconstructed sources. It is also possible that an addition or change would satisfy neither set of criteria. If a change did not exceed the 50% fixed capital cost to be a reconstruction or the 10 tpy/25 tpy emission potential to be a new source, the added or changed equipment might still be subject to the HON. For example, an owner or operator may switch from using a non-HAP raw material to using a HAP as a raw material. Or, a change in catalyst type could increase capacity thereby causing an increase in emissions above the 10 tpy/25 tpy threshhold. In such cases, if the addition or change did not satisfy the criteria for new or reconstructed source, but the additions or changes were made to part of the HON source, the added or changed equipment would be subject to the HON's existing source MACT requirements.

4.3.4 Compliance Dates

Table 4-7 lists the compliance dates for existing, new, and reconstructed sources and for additions or changes that are not subject to new source requirements. For compliance with the equipment leak provisions in Subpart H, process units have been placed in five groups with different compliance dates. Group designations are listed in Table 1 of Subpart F.

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TABLE 4-7. COMPLIANCE DATES FOR EXISTING, NEW, AND RECONSTRUCTED SOURCES

Kind of Emission Point	At Existing Sources	In a New or Reconstructed Source[a]	Part of a Change or Addition that is not Subject to New Source Requirements
Process vents, storage vessels, transfer racks, and wastewater streams (Subparts F and G)	Existing source MACT by April 22, 1997 unless an extension has been granted.	New source MACT upon initial start-up or April 22, 1994, whichever is later.	Existing source MACT upon initial start-up or by April 22, 1997, whichever is later. Special case: If a deliberate process change to an existing CMPU causes a Group 2 point to become a Group 1 point, the owner or operator may request a longer compliance schedule in accordance with §63.100(l)(4)(ii)(B) and (m). However, the compliance date cannot be later than 3 years after the point becomes Group 1.
Equipment leaks (Subparts F & H)	Existing source MACT by the following dates: Group I: October 24, 1994; Group II: January 23, 1995; Group III: April 24, 1995; Group IV: July 24, 1995; and Group V: October 23, 1995.	New source MACT upon initial start-up or by April 22, 1994, whichever is later.	Existing source MACT upon initial start-up or by April 22, 1997, whichever is later.

[a] Sources constructed or reconstructed after December 31, 1992.

SECTION 5

PROCESS VENTS

5.1 DESCRIPTION OF EMISSION POINT

A chemical manufacturing process consists of reactors, recovery units, or a combination of the two. The design of a process will vary at each facility depending on the product, the type of process, and the design capacity. Therefore, each process will have a different number, type, and configuration of process vents.

Manufacture of organic chemicals may involve conversion and separation processes. Reactor and air oxidation processes are conversion processes involving chemical reactions that alter the molecular structure of chemical compounds and form one or more new compounds. An air oxidation process uses air, or a combination of air and oxygen, as an oxygen source in a chemical reaction. Separation processes are used to produce or recover a product from a mixture and are often used following a conversion process. Distillation, stripping, absorption, adsorption, filtration, crystallization, and extraction are all separation processes which divide chemical mixtures into distinct fractions, such as products and by-products. All of these processes have potential emission points. The process vent provisions of the hazardous organics NESHAP (HON) and the SOCMI distillation, air oxidation, and reactor processes NSPS' focus primarily on vents from reactor and air oxidation processes and distillation operations. They cover both vent streams emitted directly from these operations, as well as vent streams that are emitted indirectly (e.g., through a recovery device).

Reactor processes may involve liquid-phase or gas-phase reactions. Gas-phase reactions usually have at least one recovery device used to produce a liquid product. Reactors may have an atmospheric vent, may vent to one or more recovery devices, or both. Also, any vent from a reactor or recovery device may vent to a combustion device. Figure 5-1 shows four vent types, including:

(A) Direct reactor process vents from liquid-phase reactors;

(B) Process vents from recovery devices applied to vent streams from liquid phase reactors;

(C) Process vents from gas-phase reactors after a recovery device;

(D) Process vents from combustion devices applied to vent types A, B, and C.

These four diagrams represent only a few of the possible vent configurations. For example, a reactor may have both A and B type vents, or multiple type B vents.

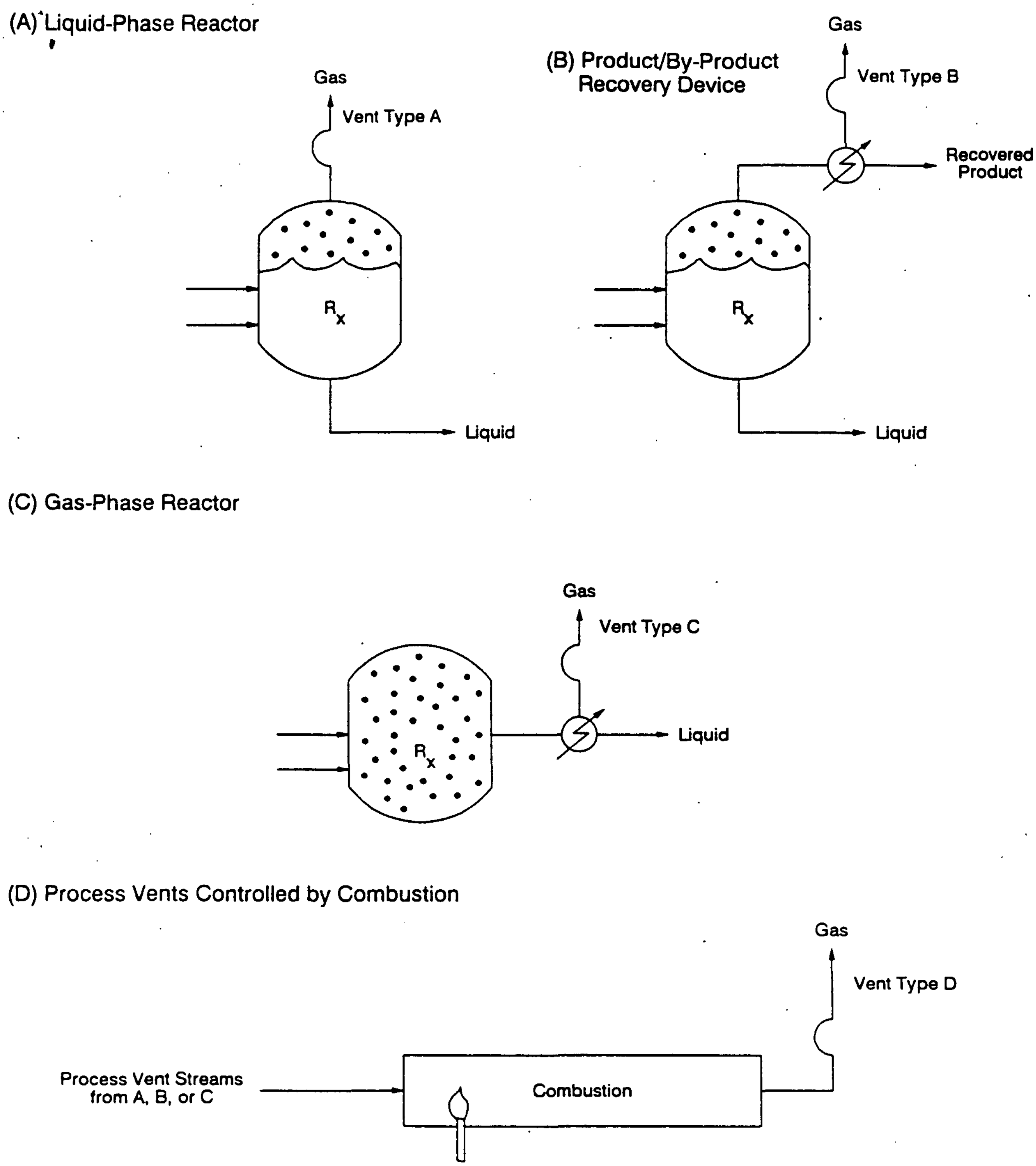

Figure 5-1. Examples of Reactor-Related Vents

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Air oxidation reactor processes vent large quantities of vapors with low concentrations of volatile organic compounds (VOC's) because large quantities of air or air enriched with oxygen act as the oxidizing agent in the process. Because of the increased air flow, these vents are typically larger in size. An air oxidation process typically occurs in a reactor over a catalyst bed, followed by a condensation/extraction process which is usually vented to the atmosphere.

Distillation is the most widely used separation process and has the potential to release larger amounts of VOC's and hazardous air pollutants (HAP's) from multiple emission points than other separation processes. Distillation processes occur at various temperatures and pressures and require varying numbers of distillation stages. Six potential emission points for atmospheric and vacuum distillation columns are shown in Figures 5-2 through 5-4. These emission points can include vents on: (1) condensers, (2) overhead receivers, (3) hot wells, (4) steam jet ejectors, (5) vacuum pumps, and (6) pressure relief valves. Strippers are a type of fractionating distillation column and will have emission points similar to those shown in Figures 5-2 through 5-4. [It should be noted that emissions from hotwells are subject to the wastewater provisions of the HON rather than the process vent provisions because the emissions result from a contaminated stream.[1]]

5.2 DESCRIPTION OF EMISSION CONTROL TECHNOLOGIES

Combustion is the most universally applicable technique for control of organic HAP and VOC emissions from process vents. Combustion devices can be applied to reactor, air oxidation, and distillation process vents, and can achieve efficiencies of 98 percent reduction in organic HAP or VOC emissions, or an outlet HAP or VOC concentration of 20 parts per million by volume (ppmv) dry basis, corrected to 3 percent oxygen. Combustion control devices are described in Section 5.2.1.

As described in Section 5.1, recovery devices are used in many chemical manufacturing processes. The most common types of recovery devices are described in Section 5.2.2. Recovery devices are not considered "control devices" for purposes of meeting the 98 percent reduction requirements of the process vents provisions of the HON. However, the HON allows the use of recovery devices to achieve compliance if certain conditions are met. If a recovery device is used to increase the total resource effectiveness (TRE) index value to greater than 1.0, then the process vent is considered to be in compliance. The TRE is an index of the cost effectiveness of control and is calculated from measurements or estimates of vent stream flow and HAP and VOC concentrations after the final recovery device. Information on the specific compliance options for process vents, including the use and calculation of TRE index values, is presented in Section 5.3.3.

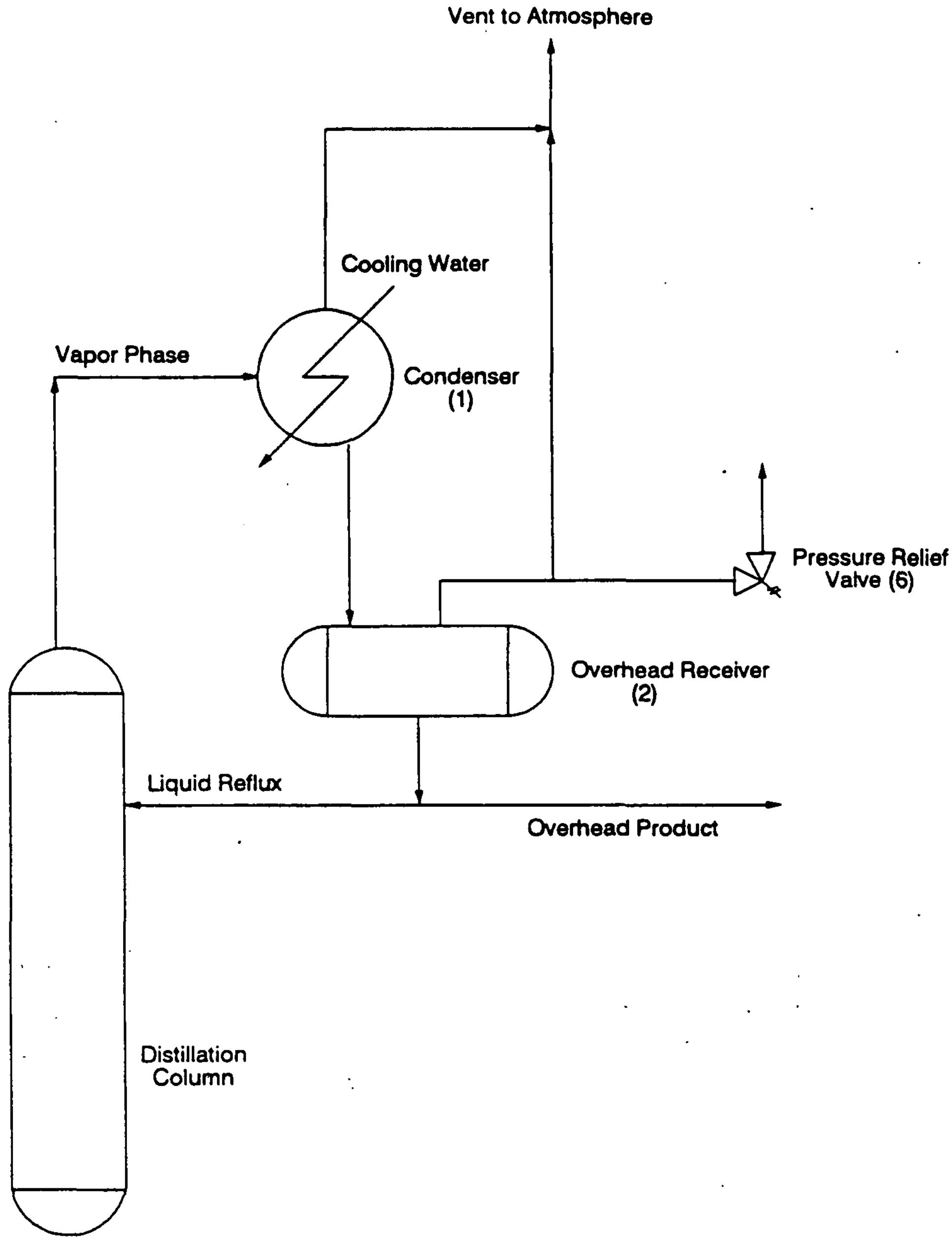

Figure 5-2. Potential VOC and HAP Emission Points for an Atmospheric (Nonvacuum) Distillation Column

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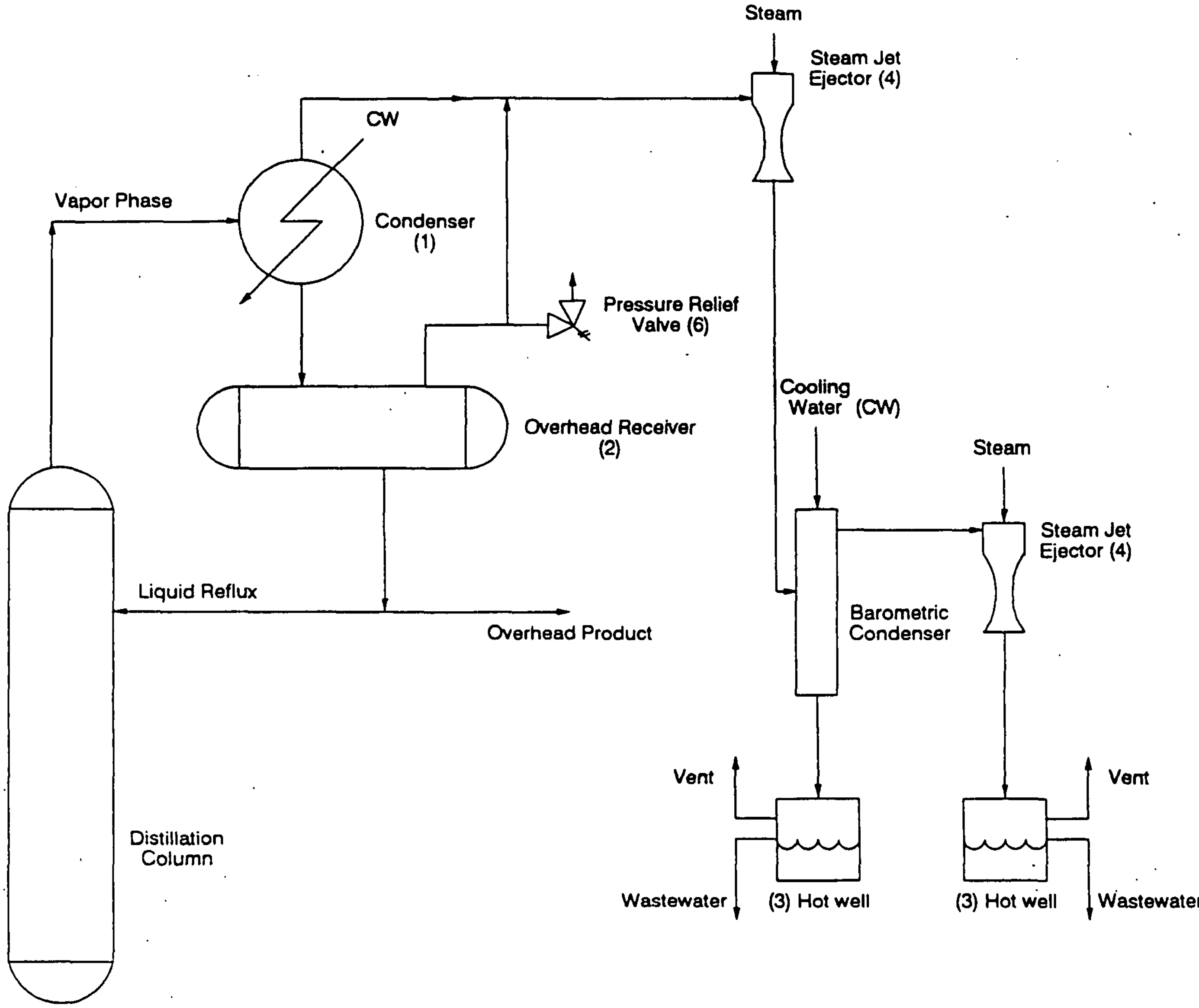

Figure 5-3. Potential VOC and HAP Emission Points for a Vacuum Distillation Column Using Steam Jet Ejectors With Barometric Condenser

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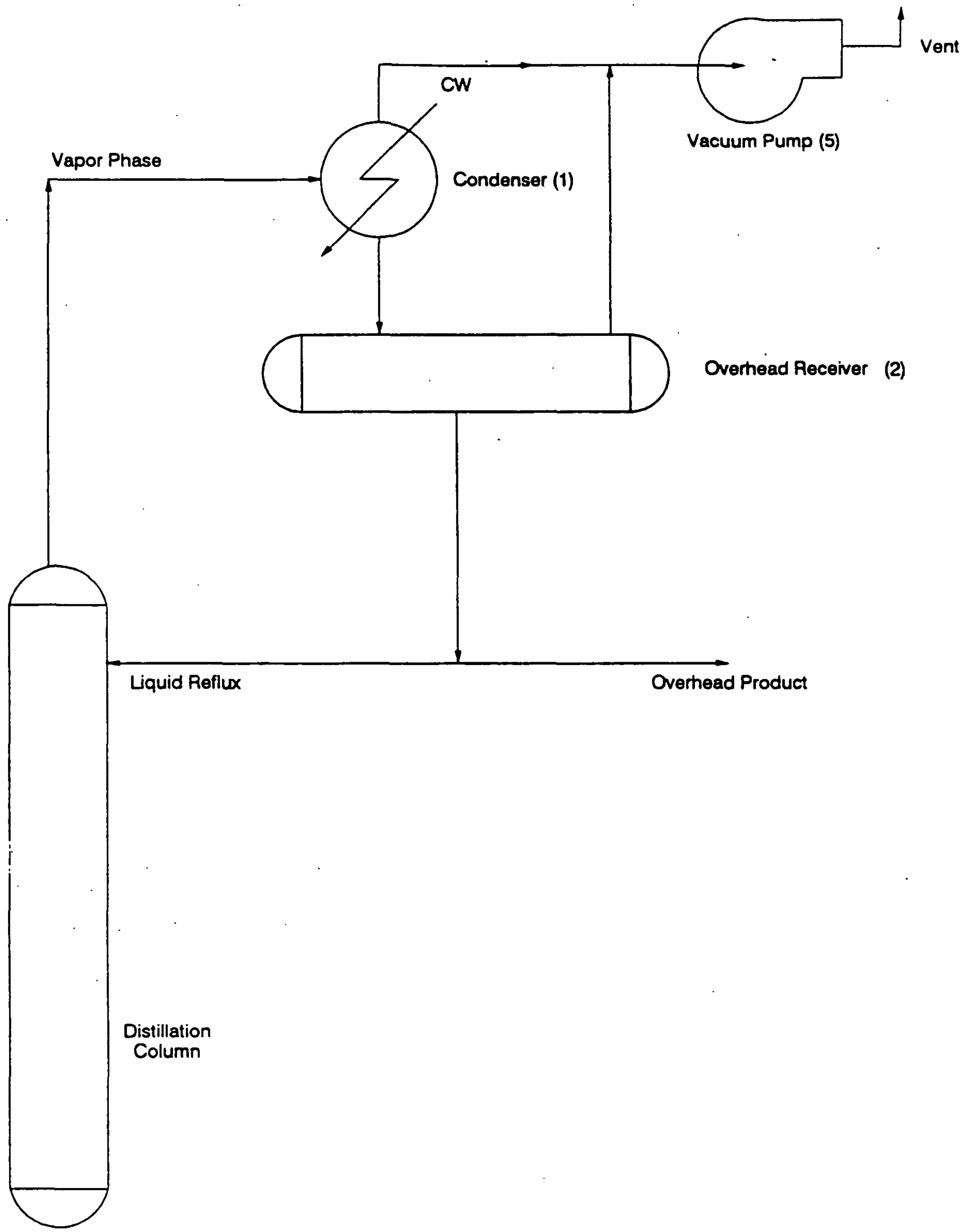

Figure 5-4. Potential VOC and HAP Emission Points for a Vacuum Distillation Column Using a Vacuum Pump

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5.2.1 Combustion Control Devices

Combustion control devices include incinerators, flares, boilers, and process heaters. Combustion control devices operate on the principle that any VOC heated to a high enough temperature in the presence of sufficient oxygen will oxidize to carbon dioxide and water. The theoretical combustion temperature varies because VOC's are oxidized at different temperatures, depending on their properties. A consistent VOC destruction efficiency can usually be achieved in combustion devices, regardless of the amount and type of VOC in the vent stream. Scrubbers can be used downstream of combustion control devices (other than flares) to treat halogenated streams. Scrubbers reduce emissions of halogens and hydrogen halides, such as chlorine and hydrogen chloride, formed during combustion.

5.2.1.1 Thermal Incinerators

Thermal incinerators are usually refractory-lined chambers containing a burner (or set of burners). An efficient thermal incinerator provides: (1) a chamber temperature high enough to completely oxidize the VOC's; (2) sufficient mixing of combustion products, air, and the process vent streams; and (3) sufficient residence time to allow for complete oxidation of VOC's. Figure 5-5 shows the premixing chamber and combustion chamber of a discrete burner thermal incinerator. As shown in the figure, heat can be recovered to preheat combustion air or the process vent stream, or to generate steam. Figure 5-6 shows a distributed burner thermal incinerator which uses less fuel and has a shorter reaction chamber than a discrete burner thermal incinerator. All thermal incinerators operate using excess air to ensure a sufficient supply of oxygen.

Thermal incinerators can achieve at least 98 percent destruction for most VOC's. For vent streams with VOC concentrations below 2,000 ppmv, all new thermal incinerators can achieve outlet concentrations of 20 ppmv or lower. Thermal incinerators are technically feasible control options for most vent streams. Excessive fluctuations in flow rate may prevent the use of a thermal incinerator; in such situations, a flare could be used.

5.2.1.2 Catalytic Incinerators

Catalytic incinerators operate at lower temperatures than thermal incinerators because some VOC's are oxidized at lower temperatures in the presence of a catalyst. A schematic of a catalytic incinerator is shown in Figure 5-7. The vent stream is preheated in the mixing chamber, and oxidation takes place on the catalyst bed. As with thermal incinerators, heat can be recovered from the exiting gas stream.

Catalytic incinerators can achieve overall VOC destruction efficiencies of 95 to over 98 percent. The efficiency depends on temperature, oxygen content, catalyst activity, and the characteristics and concentration of the VOC. Catalytic incinerators are typically used for vent streams

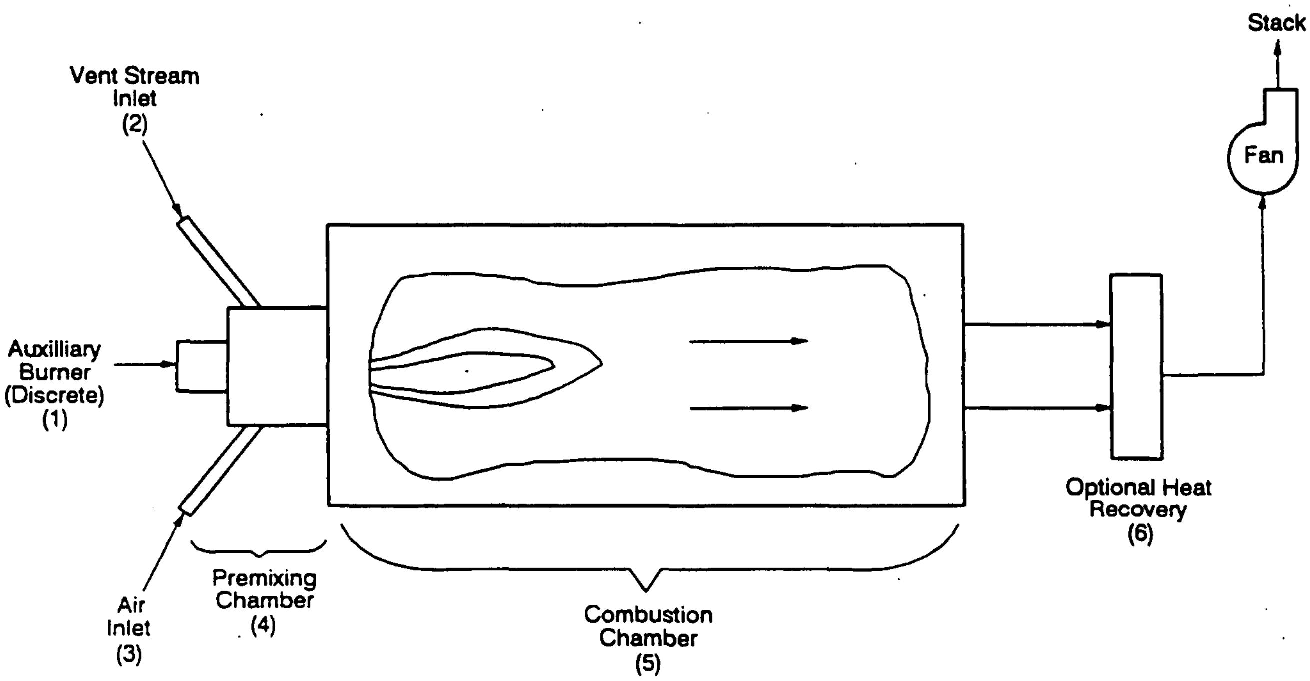

Figure 5-5. Discrete Burner, Thermal Incinerator

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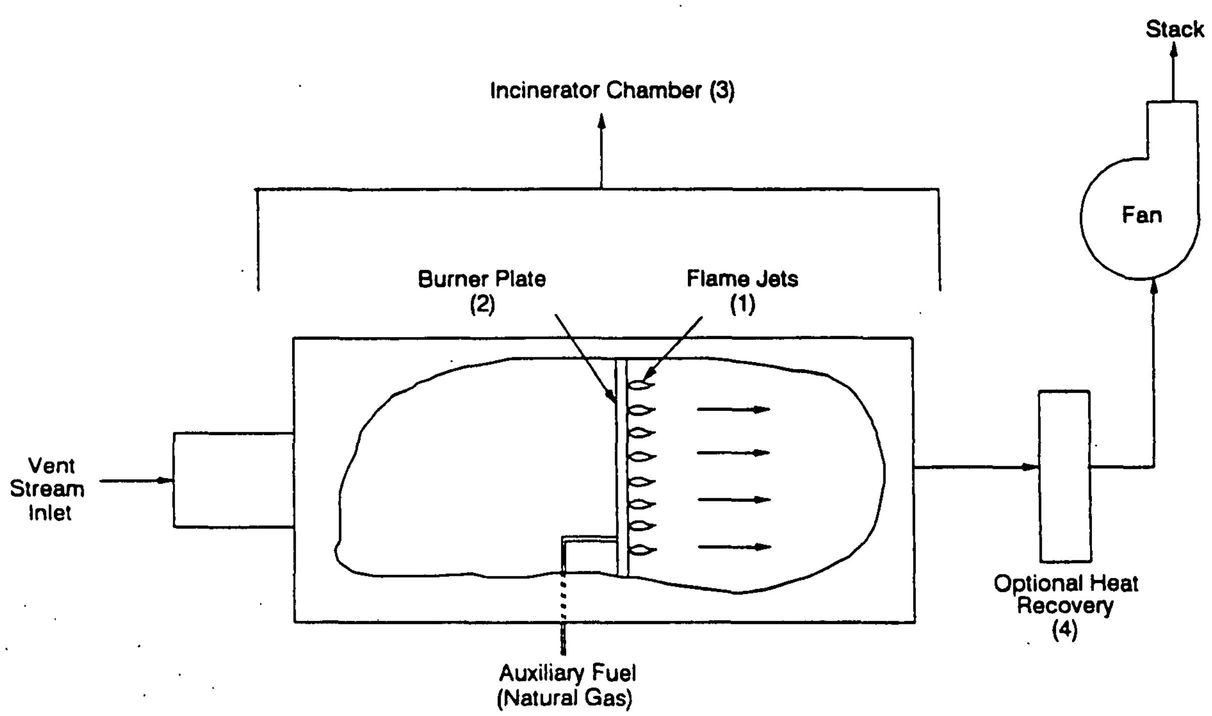

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Figure 5-6. Distributed Burner, Thermal Incinerator

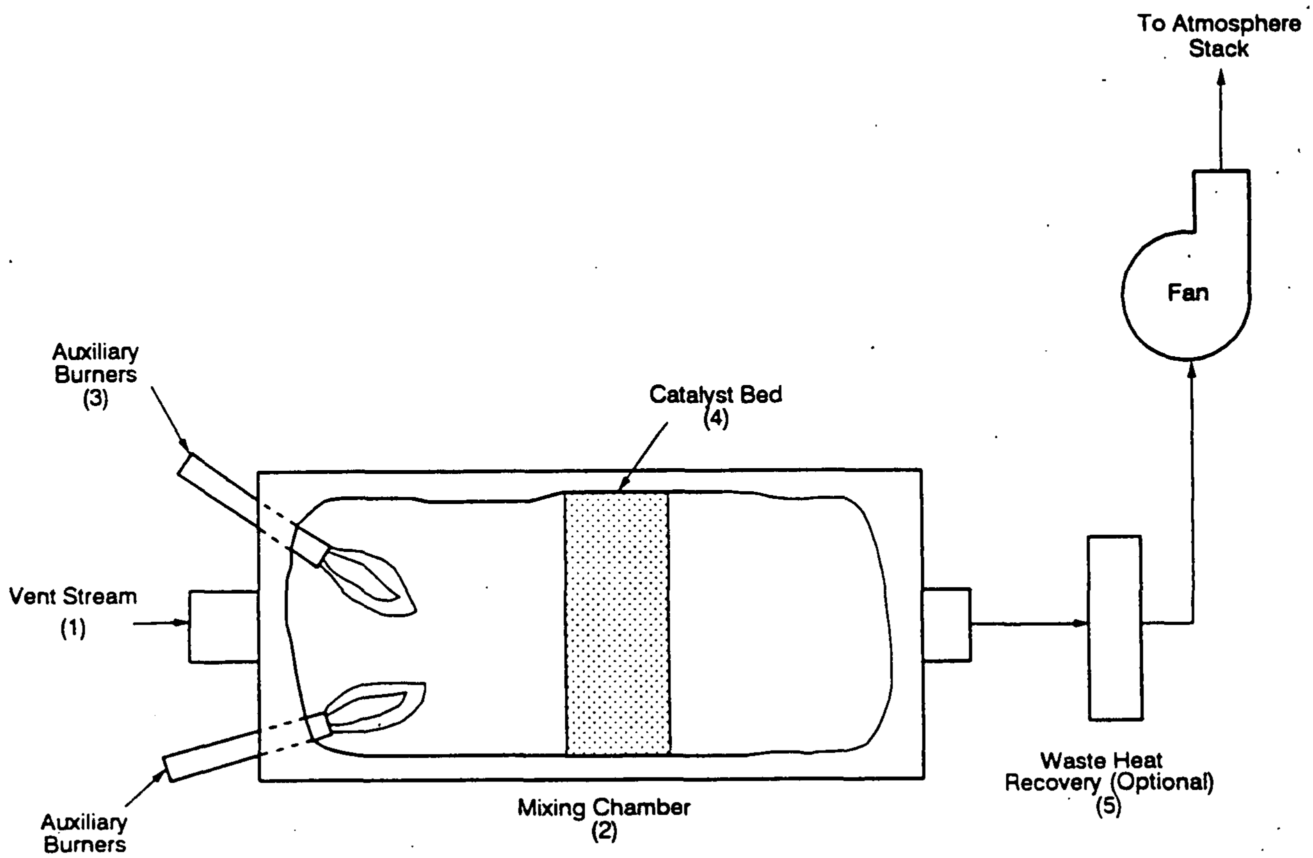

Figure 5-7. Catalytic Incinerator

with stable flow rates and stable concentrations. They cannot be used on vent streams that poison or block the catalyst reactive sites, or on vent streams with high inlet concentrations or flow rates.

5.2.1.3 Industrial Boilers and Process Heaters

Industrial boilers and process heaters combust VOC's by incorporating the vent stream into the inlet fuel or by feeding the vent stream into the boiler or heater through a separate burner. Industrial boilers are used to produce steam. When boilers fire natural gas, forced- or natural-draft burners mix the incoming fuel and combustion air. A VOC-containing vent stream can be added to this mixture or it can be fed into the boiler through a separate burner. The majority of industrial boilers used in the chemical industry are of watertube design, where hot combustion gases contact the outside of heat transfer tubes which contain hot water and steam. Process heaters are used to raise the temperature of process streams using a similar tube design, where the process fluids are contained in the tubes. Heat recovery from the exiting gas stream is achievable for both industrial boilers and process heaters.

Boilers and process heaters can achieve efficiencies of at least 98 percent. They can be used to reduce VOC emissions from any vent streams that will not reduce the performance or reliability of the boiler or process heater. For example, the varying flow rate and organic content of some vent streams can lead to explosive mixtures or flame instability. Boilers and process heaters are most applicable where the potential exists for heat recovery from the combustion of the vent stream. Vent streams with a high VOC concentration and high flow rate can provide enough equivalent heat value to act as a substitute for fuel. Because boilers and process heaters cannot tolerate wide fluctuations in the fuel supply, they are not widely used to reduce VOC emissions from batch operations and other noncontinuous vent streams. Vent streams with sulfur or halogenated compounds are not usually combusted in boilers or process heaters because these streams are corrosive.

5.2.1.4 Flares

Flaring is an open combustion process in which the oxygen necessary for combustion is provided by the air around the flame. High combustion efficiency in a flare is governed by flame temperature, residence time of the organic compound in the combustion zone, turbulent mixing to complete the oxidation reaction, and the amount of available oxygen. Steam-assisted elevated flares are the most common type used in the chemical industry (see Figure 5-8). The high flow rate of the vent stream into the flare requires more combustion air than diffusion of the surrounding air to the flame can supply. Steam injection nozzles are added to increase gas turbulence.

Flares can achieve 98 percent destruction efficiencies. Flares are most applicable to vent streams with wide flammability limits, low auto-ignition temperatures, and high heat contents. Flares can be designed to control both normal process releases and emergency upsets. Flares can be used to control almost any VOC stream and can handle fluctuations in VOC concentration, flow rate, heat

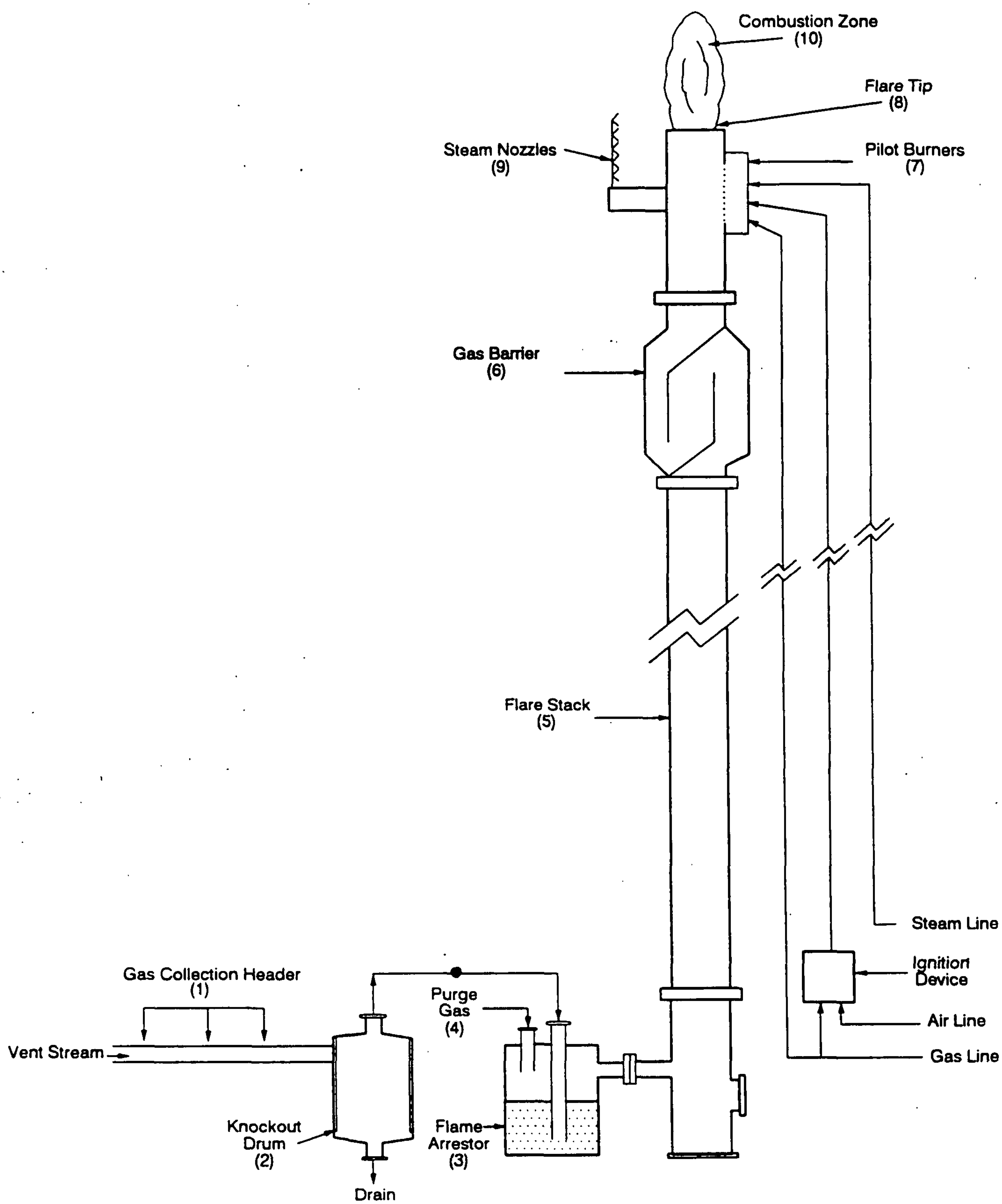

Figure 5-8. Steam-Assisted Elevated Flare System

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content, moisture content, and inerts content. Flaring is appropriate for continuous, batch, and variable flow vent streams. However, halogenated or sulfur-containing vent streams are usually not flared because they can corrode the flare tip or cause the formation of acid gases or sulfur dioxide. The HON provisions do not allow vent streams above a specified halogen content to be routed to a flare.

5.2.1.5 Halogenated Streams

Combustion equipment used for control of halogenated streams is usually followed by additional control equipment to remove corrosive combustion products (acid gases). The flue gas temperature is lowered, and the flue gas is then routed to a scrubber such as a packed tower or liquid jet scrubber. Absorption equipment (e.g., scrubbers) can also be used as recovery devices and are discussed in Section 5.2.2 of this manual.

5.2.2 Product Recovery Devices

Product recovery devices include absorbers, carbon adsorbers, and condensers, and the specific device used is determined by the vent stream characteristics. These characteristics affect the performance of recovery devices, therefore no single recovery technology is applicable to all process vent streams.

5.2.2.1 Condensers

Condensation is a separation technique in which one or more volatile components are separated from a vapor mixture through saturation followed by a phase change. Condensation can be achieved by lowering the temperature at a constant pressure, and refrigeration can be used to obtain the lower temperatures needed for compounds with lower boiling points.

Surface condensers and direct contact condensers are the two most commonly used types. A typical configuration for a refrigerated surface condenser is shown in Figure 5-9. In surface condensers, heat transfer occurs through tubes or plates in the condenser. Thus, the coolant fluid does not contact the vent stream which allows for reuse of the coolant fluid. Furthermore, the VOC's can be directly recovered from the gas stream. A shell-and-tube condenser which circulates the coolant fluid on the tube side is shown in Figure 5-10. Plate-type heat exchangers separate the coolant and vent stream by thin, flat plates. Direct contact condensers spray the coolant directly into the vent stream. Therefore, the coolant cannot be reused directly and VOC's cannot be recovered without further processing.

Precoolers may be necessary to remove moisture from the vent stream before the vent stream enters the condenser. A recovery tank for temporary storage of condensed VOC may be necessary, along with pumps and blowers.

Condensers may be used to recover raw materials and/or products. The removal efficiencies of condensers range from 50 to 95 percent, and the efficiency is dependent upon the vent stream flow rate, concentration, temperature, moisture content, and physical properties. Condensers are

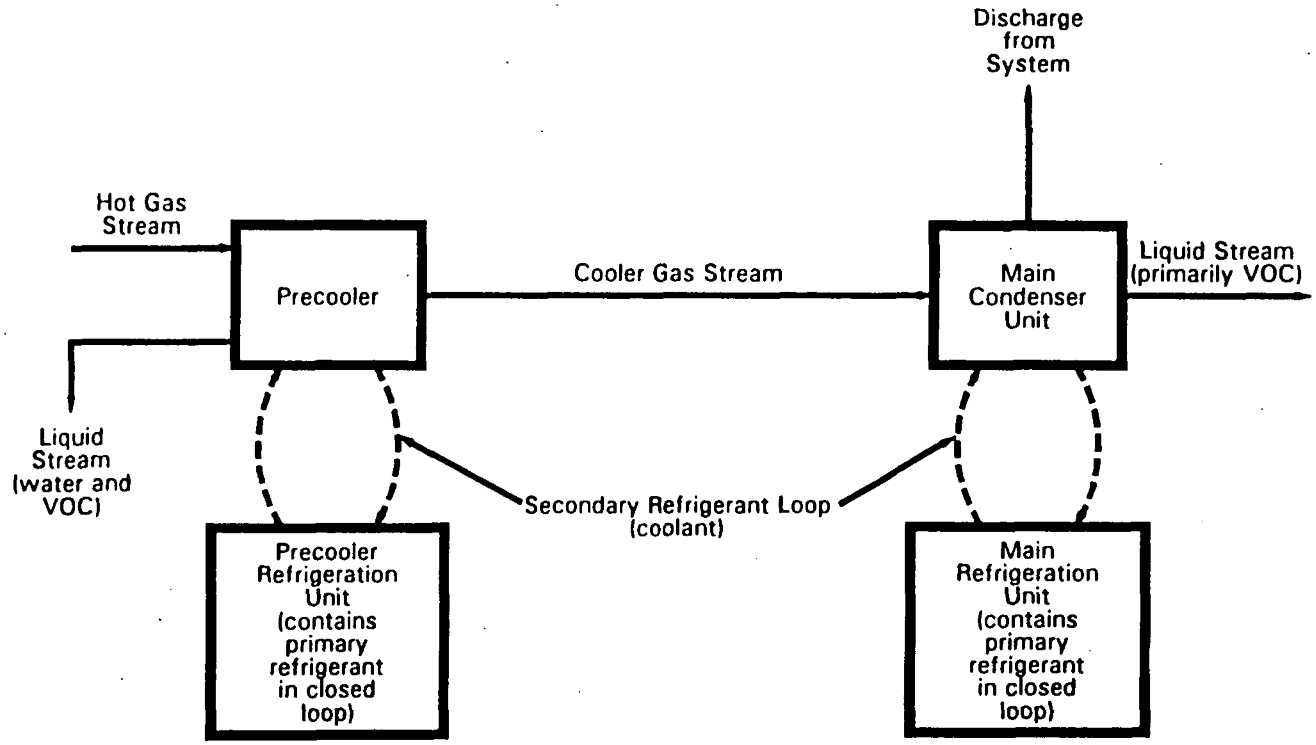

Figure 5-9. Refrigerated Surface Condenser System for VOC Vapor Recovery

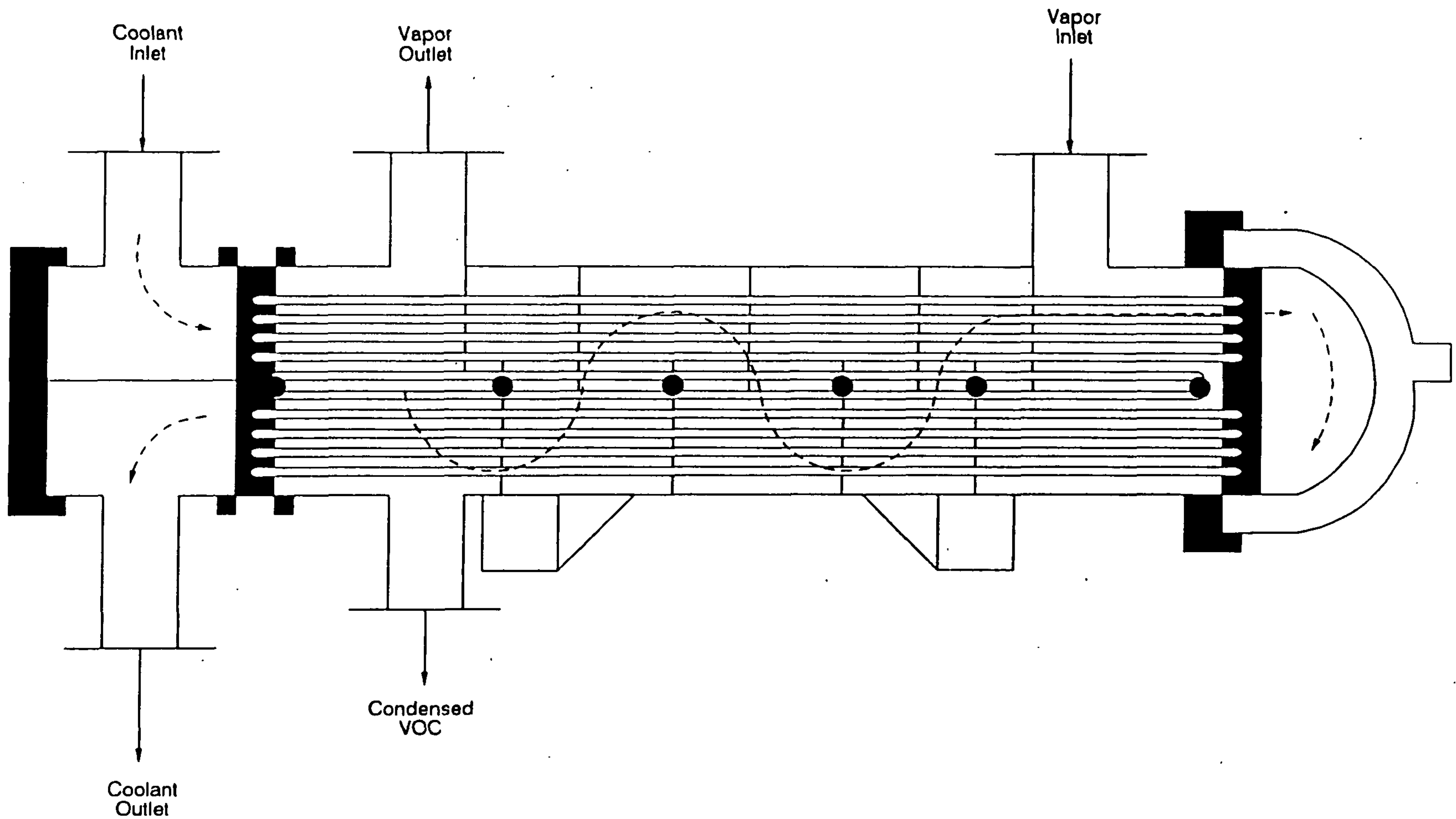

Figure 5-10. Schematic Diagram of a Shell and Tube Surface Condenser

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more economically feasible for streams with higher condensation temperatures. Vent streams with high concentrations of non-condensables will require a condenser with a larger surface area.

5.2.2.2 Adsorption

Adsorption is a mass-transfer operation where the gas-phase (adsorbate) is captured on the solid-phase (adsorbent) by physical or chemical means. A physically adsorbed molecule is easily removed from the adsorbent, whereas, the removal of chemisorbed molecules is much more difficult.

The most common industrial adsorption systems use activated carbon as the adsorbent. Activated carbon captures organic vapors by physical adsorption. Since oxygenated adsorbents selectively capture water vapor, they are not suitable for high-moisture process vent streams. Activated carbon beds are regenerated with steam or nitrogen which release the captured vapors. Figure 5-11 shows a typical fixed-bed, regenerative carbon adsorption system. When one bed is saturated, the vent stream is routed to an alternate bed while the saturated carbon bed is regenerated. The steam-laden vapors from regeneration are sent to a condenser and then to a VOC recovery system to separate the VOC's from the condensed steam.

Continuous VOC removal efficiencies of more than 95 percent are achievable using adsorption. The VOC removal efficiency of an adsorption unit depends on the vent stream characteristics, the physical properties of the compounds in the vent stream and of the adsorbent, and the condition of the bed. Carbon adsorption is not recommended for vent streams with high VOC concentrations, high or low molecular weight compounds, mixtures of high and low boiling point VOC's, or vent streams with a high moisture content.

5.2.2.3 Absorption

Absorption is the selective transfer of one or more components of a gas mixture (solute) into a liquid solvent. Devices based on absorption principles include spray towers, Venturi and wet impingement scrubbers, packed columns, and plate columns. Spray towers have the least effective mass transfer capability and are generally restricted to particulate matter removal and control of high-solubility gases. Venturi scrubbers are also limited to particulate matter and high-solubility gases. Therefore, VOC control by gas absorption is limited to packed or plate columns.

Packed towers are vertical columns containing inert packing that provides surface area for contact between the liquid and gas phases. A countercurrent packed column is shown in Figure 5-12. Packed columns are used primarily for corrosive materials and liquids with tendencies to foam or plug. They are less expensive than plate columns when the column diameter is small and more suitable where plate columns would result in large pressure drops. The vent stream and saturated liquid from a packed column may require further treatment.

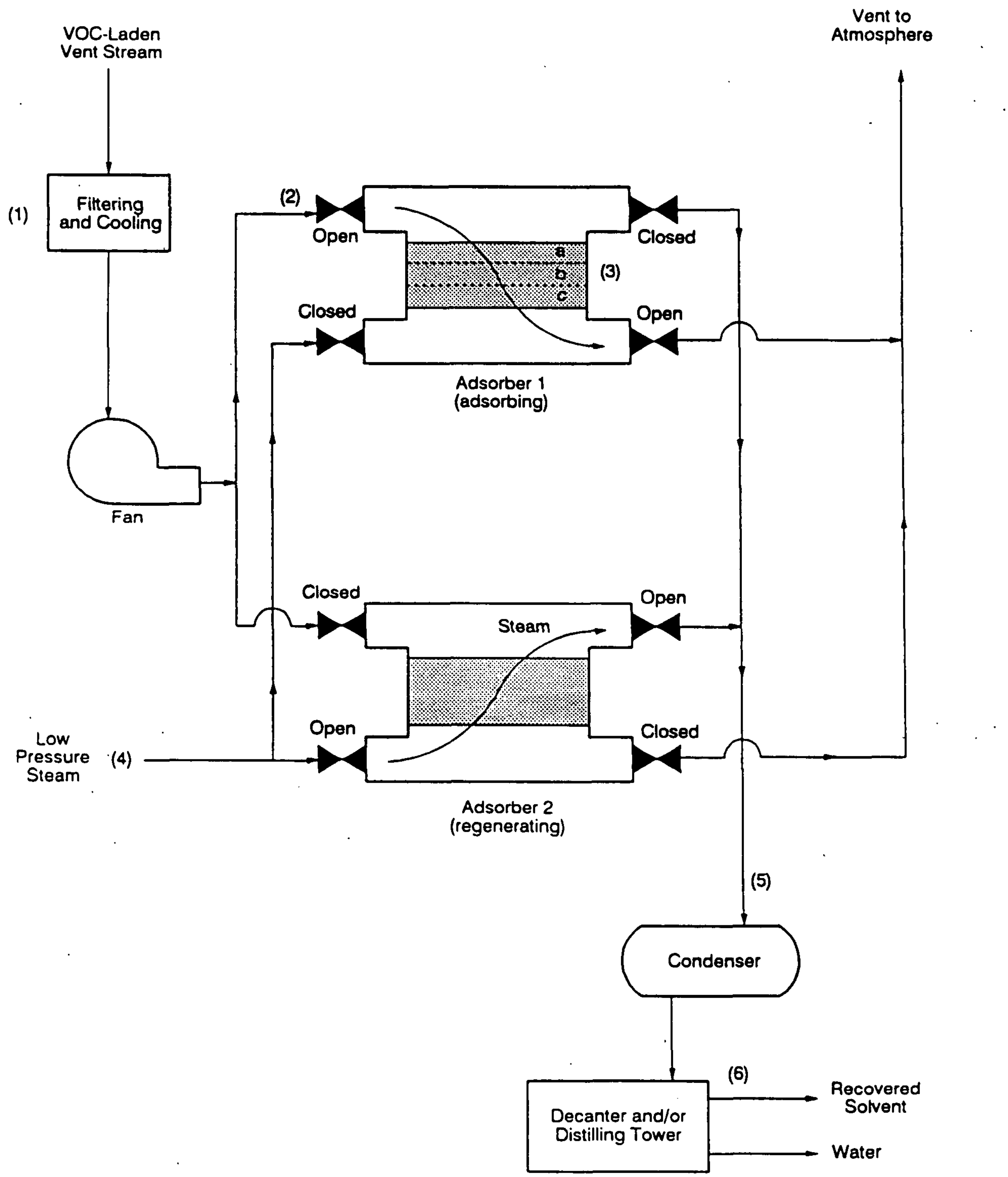

Figure 5-11. Two-Stage Regenerative Adsorption System

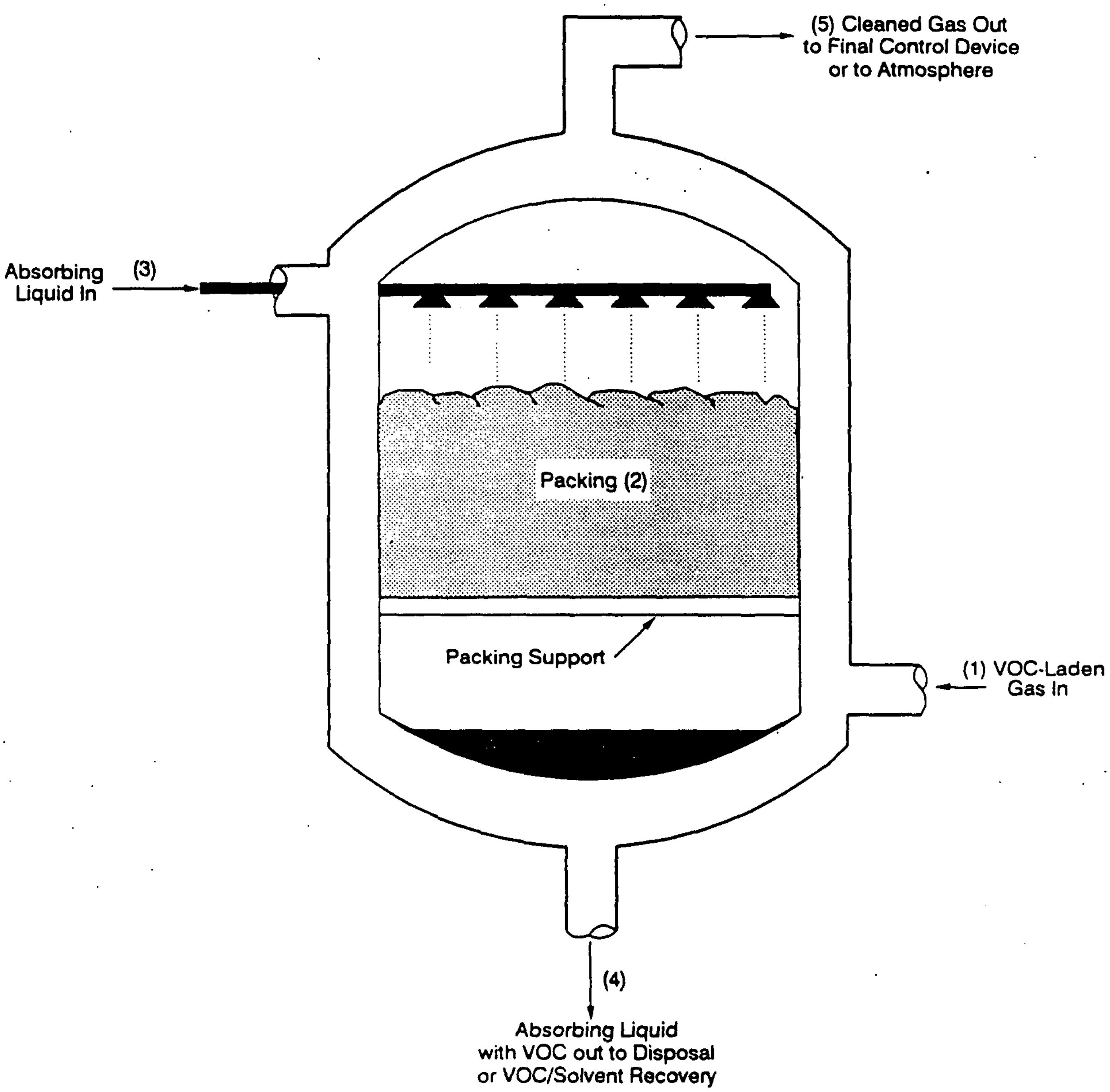

Figure 5-12. Packed Tower Absorption Process

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In plate or tray columns, contact between the liquid and gas phases takes place on a series of trays. These columns are preferred for large-scale operations, where internal cooling is desired or where low liquid flow rates would inadequately wet the packing.

Control efficiencies for absorbers vary from 50 to greater than 95 percent. Efficiency depends on the selected solvent, the contact surface area (absorber size), and the temperature. The applicability of absorption to vent streams is dependent on the availability of a suitable solvent, and the solubility of the VOC in the solvent. If a VOC cannot be easily desorbed from the solvent, then absorption is less viable. Absorption is usually considered for streams with a VOC concentration above 200 to 300 ppmv.

Scrubbers are used downstream of combustion devices to control emissions of halogens and halogen halides formed during combustion. The typical scrubbing solvents used are water or a caustic solution. Either plate or packed bed scrubbers can be used, and these scrubbers can have countercurrent or crosscurrent flow. The type and orientation of the scrubber used depends on liquid and gas flow rates.

Scrubber efficiencies for removal of halogens and halogen halides will vary depending on the type of scrubber and the type of solvent used, and the equilibrium relationship between the gas and liquid. However, most systems can achieve efficiencies from 90 percent to greater than 99 percent.

5.3 PROCESS VENT PROVISIONS

This section summarizes the process vent provisions in §63.113 through §63.118 of Subpart G.

5.3.1 Process Vent Definition

For purposes of the HON, a "process vent" is a gas stream containing greater than 0.005 weight percent total organic HAP that is continuously discharged during operation of the unit from an air oxidation reactor, other reactor or distillation unit within a chemical manufacturing process unit that meets all applicability criteria in §63.100 of Subpart F. This includes vents from distillate receivers, product separators associated with reactors, and ejector-condensers. Process vents include gas streams discharged directly to the atmosphere and those that are discharged to the atmosphere after diversion through a product recovery device. Relief valve discharges are not process vents.

5.3.2 Process Vent Group Determination

Group 1 and Group 2 process vents are defined in §63.111 of Subpart G, based on the vent stream total resource effectiveness (TRE) index value. The TRE index value is a measure of the supplemental total resource requirement per unit reduction of organic HAP associated with a process vent stream. The TRE index value is a cost-effectiveness index, associated with an individual process vent stream and is dependent on the process vent flow rate, net heating value, total organic compounds (TOC) emission rate, and HAP emission rate. Equations that must be used to calculate the TRE index value for a process vent stream are provided in Appendix C. The coefficients used in the equation to calculate the TRE index value are different for process vents at new and existing sources. If the TRE index value is 1.0 or less, the vent is a Group 1 vent.

Table 5-1 is an applicability and group determination checklist for process vents. Section I of the table presents a set of true/false statements which can be used to determine if a process vent is subject to the process vent provisions of the HON. Section II of Table 5-1 can be used to determine if a process vent that is subject to the process vent provisions of the HON is Group 1 or Group 2. Process vents that are not subject to the process vent provisions may be subject to the equipment leak provisions in Subpart H (NESHAP for SOCMI equipment leaks) or the wastewater provisions in Subpart G, as noted in the checklist. Group 1/Group 2 determinations are required for each process vent stream that is subject to the process vent provisions, unless the process vent is already in compliance with the Group 1 requirements (98 percent reduction, 20 ppmv outlet concentration, or flare control).

5.3.3 Process Vent Control Requirements

Group 1 process vents must meet the control requirements in §63.113 of Subpart G unless they are included in an emissions average. Compliance options for Group 1 process vent streams include:

- Reducing emissions of organic HAP's using a flare meeting the specification in §63.11(b) of Subpart A (the NESHAP General Provisions);
- Reducing emissions of total organic HAP or TOC by 98 weight percent or to an exit concentration of 20 parts per million by volume, whichever is less stringent (product recovery devices are considered part of the process and cannot be included in determining compliance with this option); or
- Achieving and maintaining a TRE index value greater than 1.0 (e.g., by process modification or a product recovery device).

If a process vent stream with a mass rate of total hydrogen halides and halogen atoms greater than 0.45 kilograms per hour is combusted, a control device must be installed following the combustion device to reduce emissions of halogens and hydrogen halides. Control devices installed after December 31, 1992, must reduce overall emissions of halogens and hydrogen halides by 99 percent or reduce the outlet mass of total hydrogen halides and halogens to less than 0.45 kilograms per hour, whichever is less stringent. Control devices installed prior to December 31, 1992 must reduce

TABLE 5-1. APPLICABILITY AND GROUP DETERMINATION CHECKLIST FOR PROCESS VENTS

I. Process Vents Applicability

a.	The vent stream is discharged from a chemical manufacturing process subject to the HON.	T ☐	F ☐
b.	The vent is a gas stream containing greater than 0.005 weight percent HAP.	T ☐	F ☐
c.	The vent stream is continuously discharged (the vent is not associated with a batch process).	T ☐	F ☐
d.	The vent stream is from a reactor or air oxidation reactor or distillation unit, or from a product separator, distillate receiver, or ejector condenser that is associated with a reactor, air oxidation reactor, or distillation unit,[a] and is either: (1) Discharged directly to the atmosphere; or (2) Discharged indirectly through a recovery device.	T ☐	F ☐
e.	The vent is not a pressure relief device.[b]	T ☐	F ☐
f.	The vent is not from a recovery device installed to control emissions from wastewater treatment operations.[c]	T ☐	F ☐
g.	The vent is not an equipment leak as defined in Subpart H.[b]	T ☐	F ☐

Is the vent subject to the HON process vent provisions?

☐ Yes: If all of the statements above are true, the vent is subject to the process vent provisions in Subpart G of the HON.

☐ No: If any of the statements above are false, the vent is not subject to the process vent provisions in Subpart G of the HON.

(Continued)

TABLE 5-1. APPLICABILITY AND GROUP DETERMINATION CHECKLIST FOR PROCESS VENTS

II.	Process Vents Group Determination[d,e]		
	(Complete this portion only if the answer to Section I is "yes".)		
a.	The flow rate of the vent stream is $\geq$ 0.005 scmm.	T ☐	F ☐
b.	The HAP concentration of the vent stream is $\geq$ 50 ppmv.	T ☐	F ☐
c.	The TRE index value of the vent is $\leq$ 1.0.[f]	T ☐	F ☐
	Is the process vent Group 1?		
	☐ Yes: The process vent is Group 1 if all of the above statements are true.		
	☐ No: The process vent is Group 2 if any of the above statements are false.		

[a] The terms reactor, air oxidation reactor, distillation unit, product separator, and distillate receiver are defined in §63.101 of subpart F.

[b] If false, the emission point is not subject to the process vents provisions of Subpart G, but may be subject to the equipment leak provisions in Subpart H of the HON.

[c] If false, the emission point is not subject to the process vents provisions, but may be subject to the wastewater provisions in Subpart G of the HON.

[d] Group 1 vents must meet the control requirements in §63.113 of Subpart G, unless they are included in an emissions average. Group 2 vents are not required to apply additional controls.

[e] If an owner/operator complies with the 98 percent reduction, 20 ppmv, or flare control provisions in §63.113, group determination is not required.

[f] The coefficients used in the equation to calculate the TRE index value are different for process vents at new and existing sources. See Appendix C.

overall emissions of halogens and hydrogen halides by 95 percent or reduce the outlet mass of total hydrogen halides and halogens to less than 0.45 kilograms per hour, whichever is less stringent.

A control device may be used to reduce the vent stream halogen atom mass emission rate to less than 0.45 kilograms per hour prior to any combustion control device, and thus make the vent stream nonhalogenated. Flares cannot be used to control halogenated process vent streams.

If a boiler or process heater is used to comply with the 98 percent reduction or 20 ppmv outlet concentration, then the vent stream must be introduced into the flame zone of the control device.

If an owner or operator elects to achieve and maintain a TRE index value greater than 1.0, the vent would become a Group 2 vent and must comply with the provisions for Group 2 vents. Group 2 vents are not required to apply any additional emission controls, however, they are subject to certain monitoring, reporting, and recordkeeping requirements to ensure that they were correctly determined to be Group 2 and that they remain Group 2.

5.3.4 Process Vent Testing, Monitoring, Recordkeeping, and Reporting

Procedures for determining group status of vents, including test procedures and TRE equations, are contained in §63.115 of Subpart G. Performance test procedures are specified in §63.116. The initial performance testing and initial reporting and recordkeeping requirements for process vents that are controlled with an incinerator, boiler, process heater, or flare are outlined in Table 5-2. Note that compliance can be demonstrated by measuring either HAP or TOC emissions. Initial testing, reporting, and recordkeeping requirements for scrubbers used downstream of a combustion device used to control halogenated streams are also shown in Table 5-2. A performance test is not required for flares. However, a compliance determination by visible emissions observation is required.

Performance tests are not required for boilers and process heaters with a design heat input capacity of 44 Megawatts or greater or for boilers or process heaters where the vent stream is introduced with the primary fuel. A boiler or process heater burning hazardous waste which is permitted under 40 CFR Part 270 (the RCRA hazardous waste permit program) and is in compliance with 40 CFR Part 266 Subpart H (standard for hazardous waste burned in boilers and industrial furnaces) also does not require a performance test.

Table 5-3 shows the group determination, reporting and recordkeeping requirements for Group 2 process vent streams. As shown in Table 5-1, a Group 2 vent may be classified Group 2 on the basis of flow, concentration, or TRE index value. If the TRE index value is less than 4.0, the TRE index value calculation must be based on the test measurement parameters summarized in Table 5-3. If the TRE index value is expected to be greater than 4.0, then the parameters (e.g., flow and concentration) used in the TRE index value calculation may be estimated using engineering assessments instead of a test.

TABLE 5-2. PROCESS VENTS INITIAL PERFORMANCE TEST AND RECORDKEEPING AND REPORTING FOR COMPLIANCE DETERMINATION

Control devices which require a performance test	Test parameters	Test Methods	Recordkeeping/Reporting[a]
Thermal Incinerator; Catalytic Incinerator or Boiler or process heater with design heat input capacity less than 44 megawatts and the vent stream is not mixed with the primary fuel	(1) Percent reduction of organic HAP or TOC[b] if complying with 98 percent reduction in §63.113(a)(2). or The outlet concentration of HAP or TOC[b] in ppmv if complying with 20 ppmv limit in §63.113(a)(2).	(1) Method 18 or any method validated by Method 301	(A) Record and report the percent reduction of organic HAP or TOC[b] or the outlet concentration of HAP or TOC[1] in ppmv (B) Record and report the value of the appropriate monitored operating parameter(s) shown on Table 5-4, averaged over the time period of the performance test
	(2) Sampling Sites - Location	(2) Method 1 or 1A	
	(3) Volumetric Flow Rate	(3) Method 2, 2A, 2C, 2D	(C) For boilers and process heaters, record and report the location at which the vent stream is introduced
	(4) Oxygen Concentration	(4) Method 3B	

(Continued)

TABLE 5-2. PROCESS VENTS INITIAL PERFORMANCE TEST AND RECORDKEEPING AND REPORTING FOR COMPLIANCE DETERMINATION

Control devices which require a performance test	Test parameters	Test Methods	Recordkeeping/Reporting[a]
Scrubber for halogenated vent streams	(1) Percent reduction of total halogens and hydrogen halides if complying with the appropriate reduction requirements in §63.113(c)(1) or Outlet mass of total hydrogen halides and halogens to less than 0.45 kilograms per hour	(1) Method 26 or 26A or any method validated by Method 301	(A) Record and report the percent reduction of halogens and hydrogen halides or the concentration of each individual compound at the outlet
Flare (no performance test is required to determine percent emissions reduction or outlet HAP or TOC concentration)	(1) Visible emissions	(1) Method 22	(A) Record and report all visible emission readings, heat content, flow rate, and exit velocity (B) Record and report all periods during the compliance determination when the pilot flame is absent (C) Record and report flare design

(Continued)

TABLE 5-2. PROCESS VENTS INITIAL PERFORMANCE TEST AND RECORDKEEPING AND REPORTING FOR COMPLIANCE DETERMINATION

Control devices which require a performance test	Test parameters	Test Methods	Recordkeeping/Reporting[a]
All Control Devices	(1) Halogen concentration	(1) Method 18[c]	(A) Record and report the halogen concentration in the vent stream

[a] Reported information must be included in the Notification of Compliance Status discussed in Section 3.5.3 of this manual and in §63.152 of Subpart G.
[b] TOC = Total organic compounds.
[c] The owner or operator may also use process knowledge to determine that no halogens or hydrogen halides are present or may use engineering assessment to calculate concentration.

TABLE 5-3. INITIAL GROUP DETERMINATION AND RECORDKEEPING AND REPORTING REQUIREMENTS FOR GROUP 2 PROCESS VENTS[a]

Type of vent stream	Test parameters	Test Methods	Recordkeeping/Reporting[b]
Process vent stream with a TRE index value greater than 1.0 but less than 4.0	(1) Volumetric Flow Rate (2) Molar composition of the vent stream (3) Concentration of carbon monoxide and hydrogen (4) Concentration of water vapor (5) Total halogen concentration	(1) Method 2, 2A, 2C, 2D (2) Method 18 (3) ASTM Method D1946-77 (4) Method 4 (5) Method 18	(A) Record and report the measurements and calculations performed to determine the TRE index value (B) If an absorber, condenser, or adsorber is used, record and report the value of the appropriate monitored operating parameter(s) shown on Table 5-5 and averaged over the time period of the flow rate and concentration measurements
Process vent stream with a TRE index value greater than 4.0	None	None	(A) Record and report any measurements, engineering assessments, and calculations performed to determine the TRE index value
Process vent stream with a flow rate less than 0.005 standard cubic meter per minute	(1) Sampling sites - location (2) Volumetric flow rate	(1) Method 1 or 1A (2) Method 2, 2A, 2C, 2D	(A) Record and report the flow rate measurement

(Continued)

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TABLE 5-3. INITIAL GROUP DETERMINATION AND RECORDKEEPING AND REPORTING REQUIREMENTS FOR GROUP 2 PROCESS VENTS[a]

Type of vent stream	Test parameters	Test Methods	Recordkeeping/Reporting[b]
Process vent stream with a organic HAP or TOC concentration less than 50 parts per million by volume	(1) Sampling sites - location (2) The outlet concentration of HAP or TOC	(1) Method 1 or 1A (2) Method 18 or 25A or any method validated by Method 301[c]	(A) Record and report the organic HAP or TOC concentration measurement
All process vent streams with a TRE index value greater than 1.0	(1) Halogen concentration	(1) Method 18[d]	(A) Record and report the halogen concentration in the vent stream

[a] A Group 2 vent may be determined by demonstrating any of three criteria: TRE >1.0; flow rate < 0.005 scmm; or HAP or TOC concentration < 50 ppmv. For example, if the flow rate is < 0.005 scmm, the TRE index value need not be calculated. Test methods for each criterion are shown in the table.

[b] Reported information is included in the Notification of Compliance Status discussed in Section 3.5.3 of this manual and in §63.152 of Subpart G.

[c] If Method 25A is used, the calibration gas must be a single organic HAP compound present at greater than 50 percent by volume. Method 25A must show that the concentration of TOC is below 25 ppmv for the process vent to be Group 2.

[d] The owner or operator may also use process knowledge to determine that no halogens or hydrogen halides are present or may use engineering assessment to calculate concentration.

Monitoring provisions for process vents are contained in §63.114 of Subpart G. Continuous monitoring, recordkeeping, and reporting requirements for complying with the 98 percent reduction requirement or 20 ppmv outlet concentration are presented in Table 5-4. Continuous monitoring, recordkeeping, and reporting requirements for maintaining a TRE index value greater than 1.0 and less than or equal to 4.0 are presented in Table 5-5. Any boiler or process heater in which all vent streams are introduced with the primary fuel or where the design heat input capacity is greater than or equal to 44 Megawatts is exempt from monitoring requirements. Hazardous waste boilers that are permitted under 40 CFR Part 270 and are in compliance with 40 CFR Part 266 do not have continuous monitoring requirements. Monitoring is also not required for process vents with a TRE index value greater than 4.0, a flow rate less than 0.005 standard cubic meters per minute, or a concentration less than 50 ppmv.

For each parameter monitored according to Tables 5-4 and 5-5, the owner or operator must establish a site-specific range for the parameter that indicates proper operation of the control or recovery device. If an owner or operator uses a control device or recovery device other than those listed in Tables 5-4 and 5-5, or wishes to monitor parameters other than those specified in Tables 5-4 and 5-5, the owner or operator must submit a description of, and rationale for, the planned monitoring, recordkeeping and reporting in the Implementation Plan discussed in Section 3.5.2 or the operating permit application.

For Group 2 process vents, any process changes which can cause a change in the TRE index value, the flow rate, or the outlet concentration must be reported. Any recalculation or remeasurement of the parameter(s) used to determine Group 2 status, TRE index value, flow rate, or outlet concentration, must also be reported. If the process change causes the flow rate to increase to 0.005 standard cubic meter per minute or the HAP concentration to increase to 50 ppmv, a TRE index value calculation must be performed if either of these parameters are used to determine Group 2 status.

5.4 PROCESS VENT INSPECTION PROCEDURES

Table 5-6 presents a checklist that can be used to verify if a process vent is in compliance with the process vent provisions of the HON. The table lists the specific records and reports that a facility needs to keep for each of the control and recovery devices that are likely to be used for compliance. The owner or operator may comply using a control device other than those listed in Table 5-6 or may request to monitor parameters other than those specified in Table 5-6. In these cases, the inspector should verify that the facility obtained approval from the Administrator (or agency to which authority has been delegated) and then verify that the approved parameters are recorded and reported.

TABLE 5-4. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR PROCESS VENTS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

Control Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Thermal Incinerator	Firebox temperature[b] [63.114(a)(1)(i)]	1. Continuous records[c]
		2. Record and report the firebox temperature averaged over the full period of the performance test - NCS[d]
		3. Record the daily average firebox temperature for each operating day[e]
		4. Report all daily average temperatures that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR[g]
Catalytic Incinerator	Temperature upstream and downstream of the catalyst bed [63.114(a)(1)(ii)]	1. Continuous records
		2. Record and report the upstream and downstream temperatures and the temperature difference across the catalyst bed averaged over the full period of the performance test - NCS
		3. Record the daily average upstream temperature and temperature difference across catalyst bed for each operating day[e]
		4. Report all daily average upstream temperatures that are outside the range established in the NCS or operating permit - PR
		5. Report all daily average temperature differences across the catalyst bed that are outside the range established in the NCS or operating permit - PR
		6. Report all operating days when insufficient monitoring data are collected[f]

(Continued)

TABLE 5-4. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR PROCESS VENTS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

Control Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Boiler or Process Heater with a design heat input capacity less than 44 megawatts and Vent Stream is not introduced with or as the primary fuel	Firebox temperature[b] [63.114(a)(3)]	1. Continuous records 2. Record and report the firebox temperature averaged over the full period of the performance test - NCS 3. Record the daily average firebox temperature for each operating day[e] 4. Report all daily average firebox temperatures that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR
Flare	Presence of a flame at the pilot light [63.114(a)(2)]	1. Hourly records of whether the monitor was continuously operating and whether the pilot flame was continuously present during each hour. 2. Record and report the presence of a flame at the pilot light over the full period of the compliance determination - NCS 3. Record the times and durations of all periods when a pilot flame is absent or the monitor is not operating - PR 4. Report the times and durations of all periods when all pilot flames of a flare are absent - PR
Scrubber for Halogenated Vent Streams (Note: Controlled by a combustion device other than a flare)	pH of scrubber effluent [63.114(a)(4)(i)], and	1. Continuous records 2. Record and report the pH of the scrubber effluent averaged over the full period of the performance test - NCS 3. Record the daily average pH of the scrubber effluent for each operating day[e] 4. Report all daily average pH values of the scrubber effluent that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR

(Continued)

TABLE 5-4. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR PROCESS VENTS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

Control Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Scrubber for Halogenated Vent Streams (Note: Controlled by a combustion device other than a flare) (continued)	Scrubber liquid and gas flow rates [63.114(a)(4)(ii)]	1. Continuous records 2. Record and report the scrubber liquid/gas ratio averaged over the full period of the performance test - NCS 3. Record the daily average scrubber liquid/gas ratio for each operating day[e] 4. Report all daily average scrubber liquid/gas ratios that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR
All Control Devices	Presence of flow diverted from the control device to the atmosphere [63.114(d)(1)] <u>or</u>	1. Hourly records of whether the flow indicator was operating and whether flow was detected at any time during each hour 2. Record and report the times and durations of all periods when the vent stream is diverted through a bypass line or the monitor is not operating - PR
	Monthly inspections of sealed valves [63.114(d)(2)]	1. Records that monthly inspections were performed 2. Record and report the duration of all periods when the car-seal or other 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 - PR
Other Control Devices not listed above	Owner or operator must submit a plan for monitoring, recordkeeping, and reporting [§63.114(c), §63.151(f), §63.152(e)]	1. As specified in the implementation plan or operating permit

[a] Regulatory citations are listed in brackets.

[b] Monitor may be installed in the firebox or in the ductwork immediately downstream of the firebox before any substantial heat exchange is encountered.

[c] "Continuous records" is defined in §63.111 of Subpart G.

(continued)

TABLE 5-4. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR PROCESS VENTS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

[d] NCS = Notification of Compliance Status described in §63.152 of Subpart G and discussed in Section 3.5.3 of this manual.

[e] The daily average is the average of all recorded parameter values for the operating day. If all recorded values during an operating day are within the range established in the NCS or operating permit, a statement to this effect can be recorded instead of the daily average.

[f] The periodic reports shall include the duration of periods when monitoring data is not collected for each excursion as defined in §63.152(c)(2)(ii)(A) of Subpart G.

[g] PR = Periodic Reports described in §63.152 of Subpart G and discussed in Section 3.5.4 of this manual.

TABLE 5-5. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR PROCESS VENTS MAINTAINING A TRE INDEX VALUE >1.0 AND ≤4.0

Final Recovery Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Absorber[b]	Exit temperature of the absorbing liquid [63.114(b)(1)], and	1. Continuous records[c] 2. Record and report the exit temperature of the absorbing liquid averaged over the full period of the TRE determination - NCS[d] 3. Record the daily average exit temperature of the absorbing liquid for each operating day[e] 4. Report all the daily average exit temperatures of the absorbing liquid that are outside the range established in the NCS or operating permit - PR[f]
	Exit specific gravity [63.114(b)(1)]	1. Continuous records 2. Record and report the exit specific gravity averaged over the full period of the TRE determination - NCS 3. Record the daily average exit specific gravity for each operating day[e] 4. Report all the daily average exit specific gravity values that are outside the range established in the NCS or operating permit - PR
Condenser[d]	Exit (product side) temperature [63.114(b)(2)]	1. Continuous records 2. Record and report the exit temperature averaged over the full period of the TRE determination - NCS 3. Record the daily average exit temperature for each operating day[e] 4. Report all the daily average exit temperatures that are outside the range established in the NCS or operating permit - PR

(Continued)

TABLE 5-5. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR PROCESS VENTS MAINTAINING A TRE INDEX VALUE >1.0 AND ≤4.0

Final Recovery Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Carbon Adsorber[d]	Total regeneration stream mass flow during carbon bed regeneration cycle(s) [63.114(b)(3)], and	1. Record of total regeneration stream mass flow for each carbon bed regeneration cycle 2. Record and report the total regeneration stream mass flow during each carbon bed regeneration cycle during the period of the TRE determination - NCS 3. Report all carbon bed regeneration cycles when the total regeneration stream mass flow is outside the range established in the NCS or operating permit - PR
	Temperature of the carbon bed after regeneration [and within 15 minutes of completing any cooling cycle(s)] [63.114(b)(3)]	1. Records of the temperature of the carbon bed after each regeneration 2. Record and report the temperature of the carbon bed after each regeneration during the period of the TRE determination - NCS 3. Report all carbon bed regeneration cycles during which temperature of the carbon bed after regeneration is outside the range established in the NCS or operating permit - PR
All Recovery Devices (as an alternative to the above)	Concentration level or reading indicated by an organic monitoring device at the outlet of the recovery device	1. Continuous records 2. Record and report the concentration level or reading averaged over the full period of the TRE determination - NCS 3. Record the daily average concentration level or reading for each operating day[e] 4. Report all daily average concentration levels or readings that are outside the range established in the NCS or operating permit - PR

(Continued)

TABLE 5-5. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR PROCESS VENTS MAINTAINING A TRE INDEX VALUE >1.0 AND ≤ 4.0

Final Recovery Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Other Recovery Devices not listed above or a Process Vent that maintains a TRE index value >1.0 and ≤ 4.0 without a Recovery Device	Owner or operator must submit a plan for monitoring, recordkeeping, and reporting [§63.114(c), §63.151(f), §63.152(e)]	1. As specified in the implementation plan or operating permit

[a] Regulatory citations are listed in brackets Note that under §63.114(e), an owner or operator may apply to monitor an alternate parameter by submitting a plan and rationale in the Implementation Plan or operating permit application as provided in §63.151(f) or §63.152(e) of Subpart G.

[b] Alternatively, these devices may comply with the organic monitoring device provisions listed at the end of this table under "All Recovery Devices."

[c] "Continuous records" is defined in §63.111 of Subpart G.

[d] NCS = Notification of Compliance Status described in §63.152 of Subpart G and discussed in Section 3.5.3 of this manual.

[e] The daily average is the average of all values recorded during the operating day. If all recorded values during an operating day are within the range established in the NCS or operating permit, a statement to this effect can be recorded instead of the daily average.

[f] PR = Periodic Reports described in §63.152 of Subpart G and discussed in Section 3.5.4 of this manual.

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

Complete this form for process vent systems. A "yes" response to all questions will indicate full compliance and, "no" response will indicate noncompliance with the standard except where noted.

CONTROL OR RECOVERY DEVICE ________________

DATE OF STARTUP _________________________

REVIEW OF RECORDS

IF THE CONTROL DEVICE IS A FLARE

1.	Results of the initial test were submitted in the NCS.[a]	Y ☐	N ☐
2.	The presence of a continuous flare pilot flame is monitored using a device designed to detect the presence of a flame.	Y ☐	N ☐
3.	All periods when all pilot flames to a flare were absent or the monitor was not operating have been recorded and reported in the PR.[b]	Y ☐	N ☐

IF THE CONTROL DEVICE IS A THERMAL INCINERATOR

1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	Test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
3.	A temperature monitoring device equipped with a continuous recorder is used to measure the temperature of the gas stream in the firebox (or in the ductwork immediately downstream of the firebox before any substantial heat exchange occurs).	Y ☐	N ☐
4.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[c] of firebox temperature are kept.	Y ☐	N ☐
6.	Records of daily average firebox temperature are kept.	Y ☐	N ☐
7.	All daily average firebox temperatures that are outside the site-specific established range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

8.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y □	N □
9.	If the firebox temperature is not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y □	N □
	[Note: If #9 is checked "Yes", the facility is in compliance even if numbers 3 through 8 are checked "No".]		

IF THE CONTROL DEVICE IS A CATALYTIC INCINERATOR

1.	Results of the initial performance test were submitted in the NCS.[a]	Y □	N □
2.	Test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y □	N □
3.	Temperature monitoring devices equipped with continuous recorders are used to measure the temperature in the gas stream immediately before and after the catalyst bed.	Y □	N □
4.	Documentation to establish a site-specific range for the gas stream temperature upstream of the catalyst bed and the temperature difference across the bed was submitted in the NCS[a] or operating permit application.	Y □	N □
5.	Continuous records[c] are kept of the temperature of the gas stream upstream of the catalyst bed and the temperature difference across the catalyst bed.	Y □	N □
6.	Records of the daily average temperature upstream of the catalyst bed and the temperature difference across the catalyst bed are kept.	Y □	N □
7.	All daily average upstream temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y □	N □
8.	All daily average temperature differences across the catalyst bed that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y □	N □
9.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y □	N □

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

10.	If the temperature upstream of the catalyst bed and/or the temperature differential across the catalyst bed are not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting. [Note: If #10 is checked "Yes", the facility is in compliance even if numbers 3 through 9 are checked "No".]	Y ☐	N ☐
IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY LESS THAN 44 MEGAWATTS AND THE VENT STREAM IS NOT INTRODUCED WITH THE PRIMARY FUEL			
1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
3.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
4.	Test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
5.	A temperature monitoring device equipped with a continuous monitor is used to measure the temperature of the gas stream in the firebox.	Y ☐	N ☐
6.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
7.	Continuous records[c] are kept of the firebox temperature.	Y ☐	N ☐
8.	Records of the daily average firebox temperature are kept.	Y ☐	N ☐
9.	All daily average firebox temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

11.	If the firebox temperature is not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting. [Note: If #11 is checked "Yes", the facility is in compliance even if numbers 5 through 10 are checked "No".]	Y ☐	N ☐
	IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY GREATER THAN 44 MEGAWATTS		
1.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
2.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
	IF THE CONTROL DEVICE IS A SCRUBBER (FOLLOWING A COMBUSTOR FOR A HALOGENATED VENT STREAM)		
1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	Either: (1) Test documentation demonstrates 99 percent control efficiency for total halogens and hydrogen halides or test documentation demonstrates that the outlet mass of total hydrogen halides and halogens are less than 0.45 kilograms per hour, or, (2) if the scrubber was installed prior to December 31, 1992, test documentation demonstrates 95 percent control efficiency for total halogens and hydrogen halides or test documentation demonstrates that the outlet mass of total hydrogen halides and halogens are less than 0.45 kilograms per hour.	Y ☐	N ☐
3.	A pH monitoring device equipped with a continuous recorder is used to monitor the pH of the scrubber effluent.	Y ☐	N ☐
4.	A flow meter equipped with a continuous recorder is used to measure the influent liquid flow and effluent vapor flow.	Y ☐	N ☐
5.	Documentation to establish a site-specific range for the pH, and liquid/gas ratio was submitted in the NCS[a] or operating permit.	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

6.	Continuous records[c] of the pH of the scrubber effluent are kept.	Y ☐	N ☐
7.	Continuous records[c] of the scrubber liquid/gas ratio are kept.	Y ☐	N ☐
8.	Records of the daily average pH and the daily average liquid/gas ratio are kept.	Y ☐	N ☐
9.	All daily average pH values of the scrubber effluent that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	All daily average scrubber liquid/gas ratios that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
11.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐
12.	If the pH and/or the scrubber liquid to gas ratio are not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #12 is checked "Yes", the facility is in compliance even if numbers 3 through 11 are checked "No".]		
	IF THE RECOVERY DEVICE IS A CARBON ADSORBER AND THE TRE INDEX VALUE IS GREATER THAN 1.0 AND LESS THAN OR EQUAL TO 4.0		
1.	Documentation of the initial TRE calculation including test results was submitted in the NCS.[a]	Y ☐	N ☐
2.	An integrating regeneration stream (e.g., steam) flow monitoring device having an accuracy of $\pm$10 percent and capable of recording total regeneration stream mass flow for each regeneration cycle is used to measure regeneration stream flow.	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

3.	A carbon bed temperature monitoring device capable of recording the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle is used to measure carbon bed regeneration temperature.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the regeneration stream flow and carbon bed regeneration temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
5.	Records are kept of the total regeneration stream mass flow for each carbon bed regeneration cycle.	Y ☐	N ☐
6.	Records are kept of the temperature of the carbon bed after each carbon bed regeneration.	Y ☐	N ☐
7.	All regeneration cycles when the total regeneration stream mass flow is outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
8.	All regeneration cycles during which the temperature of the carbon bed after regeneration is outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
9.	If the regeneration stream flow and/or the carbon bed regeneration temperature are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with items [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #9(a) is checked "Yes", <u>or</u> if 9(b) <u>and</u> 9(c) <u>and</u> 9(d) are checked "Yes", the facility is in compliance even if numbers 2 through 8 are checked "No".]		

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

IF THE RECOVERY DEVICE IS AN ABSORBER AND THE TRE INDEX VALUE IS GREATER THAN 1.0 AND LESS THAN OR EQUAL TO 4.0			
1.	Documentation of the initial TRE calculation including test results was submitted in the NCS.[a]	Y ☐	N ☐
2.	A temperature monitoring device and a specific gravity monitoring device equipped with a continuous monitor are used to measure the exit temperature of the scrubbing liquid and the exit specific gravity.	Y ☐	N ☐
3.	Documentation to establish a site-specific range for the exit temperature of the scrubbing liquid and exit specific gravity was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
4.	Records of the daily average exit temperature of the scrubbing liquid and exit specific gravity are kept.	Y ☐	N ☐
5.	Continuous records[c] of the exit temperature of the absorbing liquid are kept.	Y ☐	N ☐
6.	Continuous records[c] of the exit specific gravity are kept.	Y ☐	N ☐
7.	All daily average exit temperatures of the absorbing liquid that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
8.	All daily average specific gravity values that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
9.	If the exit temperature and/or the exit specific gravity are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting _or_ continue with items [(b) _and_ (c) _and_ (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

[Note: If #9(a) is checked "Yes", or if 9(b) and 9(c) and 9(d) are checked "Yes", the facility is in compliance even if numbers 2 through 8 are checked "No".]

IF THE RECOVERY DEVICE IS A CONDENSER AND THE TRE INDEX VALUE IS GREATER THAN 1.0 AND LESS THAN OR EQUAL TO 4.0

1.	Documentation of the initial TRE calculation including test results was submitted in the NCS.[a]	Y ☐	N ☐
2.	A temperature monitoring device equipped with a continuous recorder is used to measure the product side exit temperature.	Y ☐	N ☐
3.	Documentation to establish a site-specific range for the exit temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
4.	Records of the daily average exit temperature are kept.	Y ☐	N ☐
5.	Continuous records[c] of the exit temperature are kept.	Y ☐	N ☐
6.	All product side daily average exit temperatures that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
7.	If the exit temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with items [(b) and (c) and (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

[Note: If #7(a) is checked "Yes", or if 7(b) and 7(c) and 7(d) are checked "Yes", the facility is in compliance even if numbers 2 through 6 are checked "No".]

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

GENERAL - FOR ANY (NON-RECOVERY) CONTROL DEVICE

[Note: Items #1 through #4 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.	Hourly records are kept of whether the flow indicator in the bypass line was operating and whether flow was detected at any time during the hour, when seal mechanisms are not used <u>and</u>	Y ☐	N ☐
2.	The time and duration of all periods when flow is diverted or the monitor is not operating are reported in the PR when seal mechanisms are not used [<u>or</u> #3 and #4].	Y ☐	N ☐
3.	Records of monthly visual inspections are kept when seal mechanisms are used <u>and</u>	Y ☐	N ☐
4.	All periods when the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out are recorded and reported in the PR when seal mechanisms are used.	Y ☐	N ☐

[Note: In order to be in compliance with provisions for bypass lines either: #1 and #2 must both be checked "yes" or both #3 and #4 must both be checked "yes".]

GENERAL - FOR GROUP 2 PROCESS VENTS

1.	Records of process changes and the recalculation of TRE index values are kept when the TRE index value of the vent stream is greater than 1.0.[d]	Y ☐	N ☐
2.	Records of process changes and the recalculation of flow rate are kept when the flow rate of the vent stream is less than 0.005 standard cubic meter per minute.	Y ☐	N ☐
3.	Records of process changes and the recalculation or remeasurement of concentration are kept if the concentration in the vent stream is less than 50 ppmv.	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

4.	Whenever process changes are made which cause a change in the status of the process vent stream, records are kept and a report was submitted within 180 days of the process modification or in the next PR describing the process modification and showing the results of the recalculation of flow rate, organic HAP concentration, and/or TRE index value.	Y ☐	N ☐
VISUAL INSPECTION			
1.	A flow indicator is present at the entrance to any bypass line that could divert the vent stream flow away from the control device to the atmosphere <u>or</u> all bypass line valves are sealed in a closed position (e.g., with a car seal or lock-and-key configuration).	Y ☐	N ☐
2.	For flares, a device for detecting the flame is present.	Y ☐	N ☐
3.	For all incinerators, and for boilers and process heaters with design heat input capacities less than 44 megawatts and the vent steam is not introduced with the primary fuel, a temperature monitoring device is present.	Y ☐	N ☐
4.	For scrubbers used after combustors for halogenated vent streams, a device for measuring pH and a device for measuring flow are present.	Y ☐	N ☐
5.	For carbon adsorbers, a device for measuring carbon bed temperature and a device for measuring regeneration stream flow are present [or #8].	Y ☐	N ☐
6.	For absorbers, a device for measuring exit liquid temperature and a device for measuring exit specific gravity are present [or #8].	Y ☐	N ☐
7.	For condensers, a temperature monitoring device is present [or #8].	Y ☐	N ☐
8.	If the monitoring devices listed in items 5 through 7 are not present, an organic compounds monitor is present.	Y ☐	N ☐
	[Note: If item #8 is checked "Yes", the facility is in compliance even if numbers 5 through 7 are checked "No".]		
9.	Visual inspection of the facility is consistent with written records.	Y ☐	N ☐

[a] NCS = Notification of Compliance Status.

[b] PR = Periodic Reports.

(continued)

[c] Continuous records, as defined in §63.111, means documentation, either in computer readable form or hard copy, or data values measured at least once every 15 minutes and recorded at the frequency specified in §63.152(f). Section 63.152(f) allows the owner to record either values measured every 15 minutes or 15-minute (or shorter period) block average values calculated from all measured values during each period. If the daily average value of a monitored value for a given parameter is within the range established in the NCS, the owner or operator may retain block hourly averages instead of the 15-minute values. An owner or operator may request approval to use alternatives to continuous monitoring under §63.151(g) of Subpart G.

[d] The number of excused excursions is as follows:

For the first semi-annual period after the NCS is due - 6 excursions;
For the second semi-annual period - 5 excursions;
For the third semi-annual period - 4 excursions;
For the fourth semi-annual period - 3 excursions;
For the fifth semi-annual period - 2 excursions;
For the sixth and all subsequent semi-annual periods - 1 excursion.

An excursion occurs when: (1) the daily average value of the monitored parameter is outside the range established in the NCS or operating permit; or (2) if monitoring data are insufficient. In order to have sufficient data, a source must have measured values for each 15-minute period within each hour for at least 75 percent of the hours the control device is operating in a day. For example, if a control device operates 24 hours per day, data must be available for all 15-minute periods in at least 18 hours; but up to 6 hours may have incomplete data. If more than 6 hours have incomplete data, an excursion has occurred. For control devices that operate less than 4 hours a day, one hour of incomplete data is allowed.

[e] Examples of process changes include, but are not limited to, changes in production capacity, production rate, feedstock type, or catalyst type, or whenever there is replacement, removal, or addition of recovery equipment. Process changes do not include process upsets; unintentional, temporary process changes; and changes that are within the range on which the original TRE calculation was based.

NOTE ALL DEFICIENCIES

5.5 REFERENCES

1. Memorandum from Paul, D., J.A. Probert, and R. Mead (Radian Corporation), to Dr. Janet S. Meyer (U.S. Environmental Protection Agency, Standards Development Branch). Characterization of Product Accumulator Vessels. January 18, 1994. p. 20.

SECTION 6
TRANSFER OPERATIONS

6.1 DESCRIPTION OF EMISSION POINT

The principal method of transferring liquid product to tank trucks and railcars is submerged loading, including submerged fill pipe loading and bottom loading. In submerged fill pipe loading, the fill pipe enters the vessel from the top but extends almost to the bottom of the vessel such that the fill pipe opening is completely submerged in the liquid product. In bottom loading, the fill pipe enters the vessel from the bottom, so that the fill pipe opening is positioned below the liquid level. Figures 4-1 and 4-2 in the Benzene Transfer Operation Inspection Manual[1] illustrate submerged fill pipe and bottom loading. Both submerged loading techniques significantly reduce liquid turbulence and liquid surface area resulting in low vapor generation.

Top splash loading, rarely used in SOCMI facilities, is another loading technique in which the fill pipe enters the vessel through the top but does not extend below the surface of the liquid. This type of loading results in high vapor generation.

The loading rack is the equipment used to transfer materials into tank trucks and railcars. The loading rack and the transfer vehicle are emission points during loading operations. A typical loading rack consists of loading arms, pumps, meters, shutoff valves, relief valves, and other associated piping necessary to perform either loading or unloading operations.

Figures 4-3 and 4-4 in the Benzene Transfer Operation Inspection Manual[1] illustrate tank truck bottom- and top-loading rack arrangements. Sections 4.1 and 4.2 of the Benzene Transfer Operation Inspection Manual[1] provide additional details, including illustrations of various transfer loading operations. They describe transfer equipment, transfer emission points, and the requirements of the Benzene NESHAP. In some cases, the requirements of the HON will differ from the requirements of the Benzene NESHAP.

6.2 DESCRIPTION OF EMISSION CONTROL TECHNOLOGIES

Organic HAP and VOC emissions from tank truck and railcar transfer racks can be collected in a vapor collection system and routed to a control device. Unlike process vents, the HON definition of "control device" for transfer racks includes recovery devices as well as combustion devices. Any device that achieves 98 percent reduction of organic HAP or VOC or achieves a 20 ppmv outlet concentration of organic HAP or VOC can be used to comply with the HON transfer provisions. Alternatively, transfer rack emissions can be controlled using a vapor balancing system.

6.2.1 Vapor Collection System

Vapor collection systems consist of piping or ductwork that captures and transports to a control device organic compounds from the vapor space of a transport vessel. Loading rack systems that incorporate the product and vapor lines into a single system are preferred since both connections can be conveniently moved out to the vessel simultaneously. The vapor return line can either be a flexible hose or a metal pipe incorporated into the loading rack arrangement using a dual style orientation. Figure 4-5 in the Benzene Transfer Operation Inspection Manual[1] illustrates a dual arm loading rack, and Figure 4-7 in the Benzene Manual[1] shows a tank truck with a vapor collection system (vapor return line).

Section 4.2.1 of the Benzene Transfer Operation Inspection Manual[1] provides additional details on transfer vapor collection systems and control techniques, however, this section also discusses the transfer requirements of the Benzene NESHAP. In some cases, these requirements will differ from the requirements of the HON. For example, the Benzene NESHAP applies to marine vessels, but the HON does not.

6.2.2 Combustion and Recovery Devices

Incinerators, flares, boilers, and process heaters, which are described in Section 5.2.1, are combustion control devices that can be used to comply with the transfer control requirements. Product recovery devices that can be used to meet the transfer control requirements include condensers, carbon adsorbers, and absorbers, which are described in Section 5.2.2. Figure 4-7 in the Benzene Transfer Operation Inspection Manual[1] shows a tank truck vapor return line routed to a vapor recovery device.

6.2.3 Vapor Balancing

Vapor balancing is another means of collecting vapors and reducing emissions from transfer operations. Vapor balancing is most commonly used where storage facilities are adjacent to the loading facility. As shown in Figure 6-1, an additional line is connected from the transport vessel to the storage tank to return any vapor that is displaced from the transport vessel to the vapor space of the storage vessel from which the transferred liquid was pumped. Because this is a direct volumetric exchange, there should be no losses to the atmosphere.

6.3 TRANSFER OPERATIONS PROVISIONS

This section summarizes the transfer operation provisions in §63.126 through §63.130 of Subpart G.

6.3.1 Transfer Operations Definition

A transfer operation is defined as the loading of one or more liquid organic HAP's from a transfer rack assigned to a chemical manufacturing process that meets the applicability criteria in

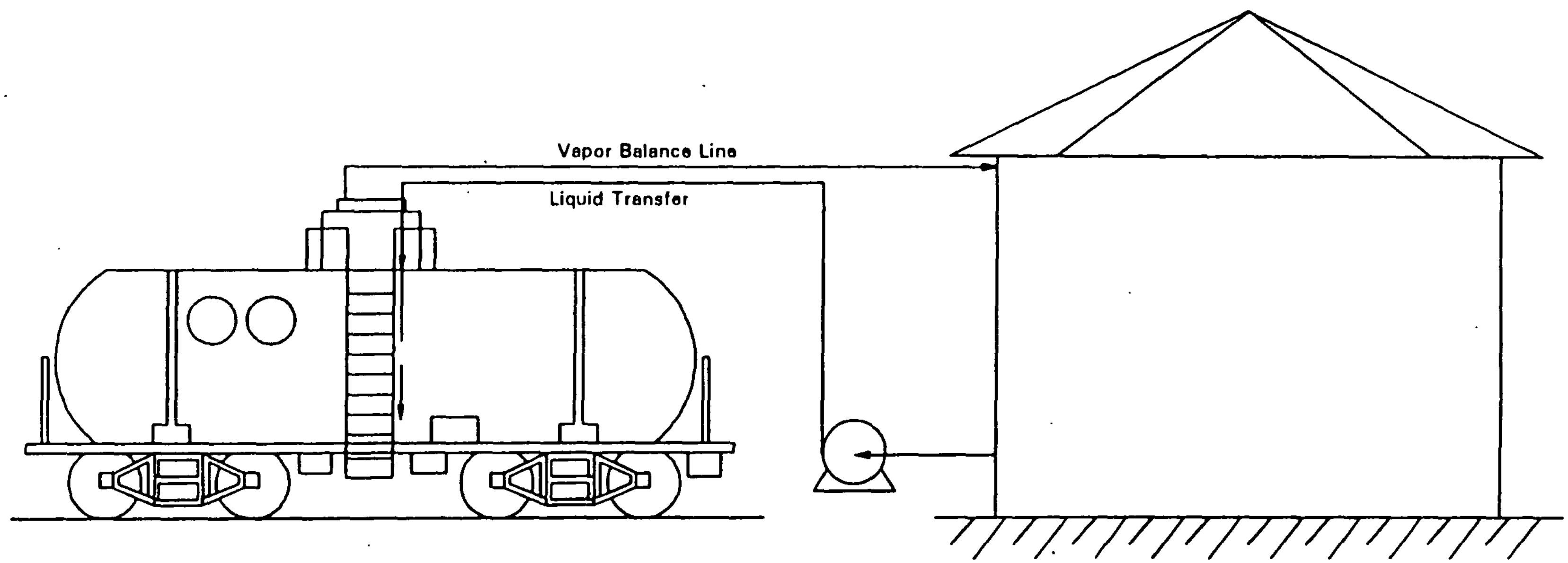

Figure 6-1. Vapor Balancing System

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§63.100 into a tank truck or railcar. A transfer rack is defined as the loading arms, pumps, meters, shutoff valves, relief valves, and other piping and valves necessary to fill tank trucks or railcars. Transfer operations loading at an operating pressure greater than 204.9 kPa are not subject to the HON. Racks that transfer liquids that contain organic HAP's only as impurities are not subject to the HON. Racks that vapor balance during all loading operations are not subject to the transfer provisions in §63.126 through §63.130.

6.3.2 Transfer Operations Group Determination

Group 1 and Group 2 transfer racks are defined in §63.111 of Subpart G. The criteria used to determine whether a rack is Group 1 or Group 2 are annual throughput of organic HAP-containing liquids and rack-weighted average vapor pressure.

Table 6-1 is an applicability and group determination checklist for transfer operations. Section I of the table presents a set of true/false statements which can be used to determine if the transfer provisions of the HON are applicable to a transfer rack. If a transfer rack is subject to the transfer provisions in the HON, Section II of Table 6-1 can be used to determine if the transfer rack is Group 1 or Group 2.

6.3.3 Transfer Operation Control Requirements

Group 1 transfer racks must meet the control requirements in §63.126 of Subpart G when the operating pressure of the transfer operation is less than or equal to 204.9 kilopascals, unless the rack is included in an emissions average. Each Group 1 loading rack must be equipped with a vapor collection system and control device. The control device must comply with one of the following criteria:

- Reduce emissions of total organic HAP's by 98 weight-percent or to an exit concentration of 20 parts per million by volume, whichever is less stringent;
- Reduce emissions of organic HAP's using a flare which meets the specifications in §63.11(b) of Subpart A (the NESHAP General Provisions); or
- Reduce emissions of organic HAP's using a vapor balancing system.

In contrast to the process vents provisions which do not allow use of product recovery devices to determine compliance with the first option above, for transfer racks, the 98 weight percent reduction or 20 ppmv exit concentration can be achieved using either a combustion device or a product recovery device.

TABLE 6-1. APPLICABILITY AND GROUP DETERMINATION CHECKLIST FOR TRANSFER OPERATIONS

I. Transfer Rack Applicability

a.	The transfer rack loads vessels other than marine vessels.	T ☐	F ☐
b.	The transfer rack operates at pressures less than or equal to 204.9 kilopascals.	T ☐	F ☐
c.	The transfer rack loads liquids that contain HAP's other than impurities.	T ☐	F ☐
d.	The transfer rack does not use vapor balancing for all loading of organic HAP-containing liquids.	T ☐	F ☐

Is the transfer rack subject to the HON transfer provisions?

☐ Yes: If all of the statements above are true, the transfer rack is subject to the transfer provisions in Subpart G of the HON.

☐ No: If any of the statements above are false, the transfer rack is not subject to the process vent provisions in Subpart G of the HON.

II. Transfer Rack Group Determination[a]

(Complete this portion only if the answer to Section I is "yes".)

a.	The transfer rack loads more than 650,000 liters per year of liquid products containing organic HAP's.	T ☐	F ☐
b.	The transfer rack weighted average partial pressure is greater than or equal to 10.3 kilopascals.	T ☐	F ☐

Is the transfer rack Group 1?

☐ Yes: The transfer rack is Group 1 if all of the above statements are true.

☐ No: The transfer rack is Group 2 if any of the above statements are false.

[a] Group 1 transfer racks must meet the control requirements in Section 63.126 of Subpart G during transfer operations when the operating pressures are less than or equal to 204.9 kilopascals, unless the rack is included in an emissions average. Group 2 transfer racks are not required to apply additional controls.

Each vapor collection system used to comply with the transfer provisions must achieve the following:

- Collect the displaced vapors from the transfer operation and route them to a control device; and
- Prevent organic HAP vapors collected in one arm from passing through another loading arm to the atmosphere.

If a vapor balancing system is used to comply with the transfer provisions, the vapor balancing system must achieve the following:

- Collect the displaced vapors from the transfer operation and either:
    - route them to the storage vessel from which the transferred liquid originated; or
    - compress the vapors and commingle the liquid with the raw feed to the chemical manufacturing process unit.

If a transfer rack vent stream with a mass rate of total hydrogen halides and halogen atoms greater than 0.45 kilograms per hour is combusted, a control device must be installed following the combustion device to reduce emissions of halogens and hydrogen halides. Control devices installed after December 31, 1992 must reduce overall emissions of halogens and hydrogen halides by 99 percent or reduce the outlet mass of total hydrogen halides and halogens to less than 0.45 kilograms per hour, whichever is less stringent. Control devices installed prior to December 31, 1992 must reduce overall emissions of halogens and hydrogen halides by 95 percent or reduce the outlet mass of total hydrogen halides and halogens to less than 0.45 kilograms per hour, whichever is less stringent.

A control device may be used to reduce the vent stream halogen atom mass emission rate to less than 0.45 kilograms per hour prior to any combustion control device, and thus make the vent stream nonhalogenated. Halogenated streams cannot be routed to a flare.

If a boiler or process heater is used to control the vent stream from a transfer rack, the vent stream must be introduced into the flame zone.

The tank truck or railcar vapor collection equipment must be compatible with and connected to the loading rack's vapor collection system. The owner or operator must ensure that any pressure-vacuum vent will not open during loading and that all vents that could divert the vapor flow to the atmosphere are either secured using a car seal or a lock-and-key type configuration, or equipped with a flow indicator.

Group 2 transfer racks are not required to apply emission controls, but recordkeeping and reporting is required to verify that they are Group 2.

6.3.4 Transfer Operations Testing, Monitoring, Recordkeeping, and Reporting

Initial performance testing, and initial reporting, and recordkeeping requirements for Group 1 transfer racks are summarized in Table 6-2. A performance test is not required for flares. However, a compliance determination is required which includes determining visible emissions.

Performance tests are not required for vapor balancing systems, or boilers or process heaters with a design heat input capacity of 44 Megawatts or greater or where the vent stream is introduced with the primary fuel. A boiler or process heater burning hazardous waste which is permitted under 40 CFR part 270 and is in compliance with 40 CFR part 266 Subpart H also does not require a performance test.

For transfer racks that transfer less than 11.8 million liters per year of liquid containing organic HAP's, the owner or operator may submit a design evaluation for the control device, and monitor the design parameters instead of conducting performance tests.

Continuous monitoring, recordkeeping, and reporting requirements for transfer racks are presented in Table 6-3. Any boiler or process heater in which all vent streams are introduced with the primary fuel or where the design heat input capacity is greater than or equal to 44 Megawatts is exempt from monitoring requirements. Hazardous waste boilers that are permitted under 40 CFR Part 270 and are in compliance with 40 CFR Part 266 do not have continuous monitoring requirements.

The HON also requires periodic inspection of vapor collection and vapor balancing systems to detect leaks. The provisions are specified in §63.148 of Subpart G.

For each parameter monitored in Table 6-3, the owner or operator must establish a site-specific range for the parameters that indicates proper operation of the control device. If an owner or operator uses a control device other than those specified in Table 6-3, or wishes to monitor a parameter other than those specified in Table 6-3, the owner or operator must submit a description of and rationale for the planned monitoring, recordkeeping, and reporting in the Implementation Plan discussed in Section 3.5.2 or the operating permit application.

Group 1 transfer racks may only load tank trucks and railcars that are vapor tight. Vapor tightness must be demonstrated by either: (1) having a current certification in accordance with the U.S. Department of Transportation pressure test requirements of 49 CFR 180 for tank trucks or 49 CFR 173.31 for railcars or (2) having been shown to be vapor tight within the preceding 12 months using Method 27.

pls135/table-6.02

TABLE 6-2. TRANSFER RACK INITIAL PERFORMANCE TEST AND RECORDKEEPING AND REPORTING FOR COMPLIANCE DETERMINATION[a]

Control devices which require a performance test	Test parameters	Test Methods	Recordkeeping/Reporting
Thermal Incinerator; Catalytic Incinerator or Boiler or process heater with design heat input capacity less than 44 megawatts and the vent stream is not mixed with the primary fuel or Absorber; Condenser; or Carbon Adsorber	(1) Percent reduction of organic HAP or TOC[b] if complying with 98 percent reduction in §63.126(b)(1). or The outlet concentration of HAP or TOC[b] in ppmv if complying with 20 ppmv limit in §63.126(b)(1).	(1) Method 18 or 25A or any method validated by Method 301	(A) Record and report the percent reduction of organic HAP or TOC[b] or the outlet concentration of HAP or TOC[b] in ppmv (B) Record and report the value of the appropriate monitored operating parameter(s) shown on Table 5-8, averaged over the time period of the performance test (C) For boilers and process heaters, record and report the location at which the vent stream is introduced.
	(2) Sampling Sites - Location	(2) Method 1 or 1A	
	(3) Volumetric Flow Rate	(3) Method 2, 2A, 2C, 2D	
	(4) Oxygen Concentration	(4) Method 3B	

(Continued)

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TABLE 6-2. TRANSFER RACK INITIAL PERFORMANCE TEST AND RECORDKEEPING AND REPORTING FOR COMPLIANCE DETERMINATION[a]

Control devices which require a performance test	Test parameters	Test Methods	Recordkeeping/Reporting
Scrubber for halogenated vent streams controlled by combustion	(1) Percent reduction of total halogens and hydrogen halides if complying with the appropriate reduction requirements in §63.123(d)(1) or Outlet mass of total hydrogen halides and halogens to less than 0.45 kilograms per hour	(1) Method 26 or 26A or any method validated by Method 301	(A) Record and report the percent reduction of halogens and hydrogen halides or the concentration of each individual compounds at the outlet (B) Record and report the pH of the scrubber effluent (C) Record and report the scrubber liquid to gas ratio
Flare (no performance test is required to determine percent emissions reduction or outlet HAP or TOC concentration)	(1) Visible emissions	(1) Method 22	(A) Record and report all visible emission readings, heat content, flow rate, and exit velocity (B) Record and report all periods during the compliance determination when the pilot flame is absent (C) Record and report flare design

(Continued)

TABLE 6-2. TRANSFER RACK INITIAL PERFORMANCE TEST AND RECORDKEEPING AND REPORTING FOR COMPLIANCE DETERMINATION[a]

Control devices which require a performance test	Test parameters	Test Methods	Recordkeeping/Reporting
Vapor Collection System	(1) Equipment leaks	(1) Method 21	(A) Record and report visual inspections and leak readings
All Control Devices	(1) Halogen concentration	(1) Method 26 or 26A or any method validated by Method 301	(A) Record and report the halogen concentration in the vent stream

[a] For transfer racks that transfer less than 11.8 million liters per year, a design analysis may be conducted instead of a performance test.

[b] TOC = Total organic compounds.

TABLE 6-3. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR TRANSFER RACKS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

Control Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Thermal Incinerator	Firebox temperature[b] [63.127(a)(1)(i)]	1. Continuous records[c] during loading. 2. Record and report the firebox temperature averaged over the full period of the performance test - NCS[d] 3. Record the daily average firebox temperature for each operating day[e] 4. Report daily average temperatures that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR[g]
Catalytic Incinerator	Temperature upstream and downstream of the catalyst bed [63.127(a)(1)(ii)]	1. Continuous records[c] during loading. 2. Record and report the upstream and downstream temperatures and the temperature difference across the catalyst bed averaged over the full period of the performance test - NCS 3. Record the daily average upstream temperature and temperature difference across catalyst bed for each operating day[e] 4. Report all daily average upstream temperatures that are outside the range established in the NCS or operating permit - PR 5. Report all daily average temperature differences across the catalyst bed that are outside the range established in the NCS or operating permit - PR 6. Report all operating days when insufficient monitoring data are collected[f]

(Continued)

TABLE 6-3. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR TRANSFER RACKS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

Control Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Boiler or Process Heater with a design heat input capacity less than 44 megawatts and the vent stream is not introduced with or as the primary fuel	Firebox temperature[b] [63.127(a)(3)]	1. Continuous records[c] during loading. 2. Record and report the firebox temperature averaged over the full period of the performance test - NCS 3. Record the daily average firebox temperature for each operating day[e] 4. Report all daily average firebox temperatures that are outside the range established in the NCS or operating permit and all operating days when insufficient data are collected[f] - PR
Flare	Presence of a flame at the pilot light [63.127(a)(2)]	1. Hourly records of whether the monitor was continuously operating and whether the pilot flame was continuously present during each hour. 2. Record and report the presence of a flame at the pilot light over the full period of the compliance determination - NCS 3. Record the times and duration of all periods when the pilot flame is absent or the monitor is not operating - PR 4. Report the duration of all periods when all pilot flames of a flare are absent - PR
Scrubber for Halogenated Vent Streams (Note: Controlled by a combustion device other than a flare)	pH of scrubber effluent [63.127(a)(4)(i)], and	1. Continuous records[c] during loading 2. Record and report the pH of the scrubber effluent averaged over the full period of the performance test - NCS 3. Record the daily average pH of the scrubber effluent for each operating day[e] 4. Report all daily average pH values of the scrubber effluent that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR

(Continued)

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TABLE 6-3. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR TRANSFER RACKS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

Control Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Scrubber for Halogenated Vent Streams (Note: Controlled by a combustion device other than a flare) (continued)	Scrubber liquid and gas flow rates [63.127(a)(4)(ii)]	1. Continuous records[c] during loading 2. Record and report the scrubber liquid/gas ratio averaged over the full period of the performance test - NCS 3. Record the daily average scrubber liquid/gas ratio for each operating day[e] 4. Report all daily average scrubber liquid/gas ratios that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR
Absorber[h]	Exit temperature of the absorbing liquid [63.127(b)(1)], and	1. Continuous records[c] during loading 2. Record and report the exit temperature of the absorbing liquid averaged over the full period of the performance test - NCS 3. Record the daily average exit temperature of the absorbing liquid for each operating day[e] 4. Report all daily average exit temperatures of the absorbing liquid that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR
	Exit specific gravity [63.127(b)(1)]	1. Continuous records[c] during loading 2. Record and report the exit specific gravity averaged over the full period of the performance test - NCS 3. Record the daily average exit specific gravity for each operating day[e] 4. Report all daily average exit specific gravity values that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR

(Continued)

TABLE 6-3. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR TRANSFER RACKS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

Control Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
Condenser[h]	Exit (product side) temperature [63.127(b)(2)]	1. Continuous records[c] during loading 2. Record and report the exit temperature averaged over the full period of the performance test - NCS 3. Record the daily average exit temperature for each operating day[e] 4. Report all daily average exit temperatures that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR
Carbon Adsorber[h]	Total regeneration stream mass flow during carbon bed regeneration cycle(s) [63.127(b)(3)], and	1. Records of total regeneration stream mass flow for each carbon bed regeneration cycle 2. Record and report the total regeneration stream mass flow during each carbon bed regeneration cycle during the period of the performance test - NCS 3. Report all carbon bed regeneration cycles when the total regeneration stream mass flow is outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR
	Temperature of the carbon bed after regeneration [and within 15 minutes of completing any cooling cycle(s)] [63.127(b)(3)]	1. Records of the temperature of the carbon bed after each regeneration 2. Record and report the temperature of the carbon bed after each regeneration during the period of the performance test - NCS 3. Report all the carbon bed regeneration cycles during which the temperature of the carbon bed after regeneration is outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR

(Continued)

TABLE 6-3. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR TRANSFER RACKS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

Control Device	Parameters to be Monitored[a]	Recordkeeping and Reporting Requirements for Monitored Parameters
All Recovery Devices (as an alternative to the above)	Concentration level or reading indicated by an organic monitoring device at the outlet of the recovery device [63.127(b)]	1. Continuous records[c] during loading 2. Record and report the concentration level or reading averaged over the full period of the performance test - NCS 3. Record the daily average concentration level or reading for each operating day[e] 4. Report all daily average concentration levels or readings that are outside the range established in the NCS or operating permit and all operating days when insufficient monitoring data are collected[f] - PR
All Control Devices and Vapor Balancing Systems	Presence of flow diverted to the atmosphere from the control device [63.127(d)(1)] or	1. Hourly records of whether the flow indicator was operating and whether flow was detected at any time during each hour 2. Record and report the duration of all periods when the vent stream is diverted through a bypass line or the monitor is not operating - PR
	Monthly inspections of sealed valves [63.127(d)(2)]	1. Records that monthly inspections were performed 2. Record and report the duration of all periods when the car-seal or other seal mechanism is broken, the bypass line valve position has changed, or the key for the lock-and-key type lock has been checked out - PR 3. Report all times when maintenance is performed on car-sealed valves - PR
Other Control Devices not listed above	Owner or operator must submit a plan for monitoring, recordkeeping, and reporting [§63.127(c), §63.151(f), §63.152(e)]	1. As specified in the implementation plan or operating permit

[a] Regulatory citations are listed in brackets.

[b] Monitor may be installed in the firebox or in the ductwork immediately downstream of the firebox before any substantial heat exchange is encountered.

(continued)

TABLE 6-3. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR TRANSFER RACKS COMPLYING WITH 98 WEIGHT-PERCENT REDUCTION OF EMISSIONS OR A LIMIT OF 20 PARTS PER MILLION BY VOLUME OR USING A FLARE

[c] "Continuous records" is defined in §63.111 of Subpart G.

[d] NCS = Notification of Compliance Status described in §63.152 of Subpart G and discussed in Section 3.5.3 of this manual.

[e] The daily average is the average of all recorded parameter values for the operating day. If all recorded values during an operating day are within the range established in the NCS or operating permit, a statement to this effect can be recorded instead of the daily average.

[f] The periodic reports shall include the duration of periods when monitoring data are not collected for each excursion as defined in §63.152(c)(2)(ii)(A) of Subpart G.

[g] PR = Periodic Reports described in §63.152 of Subpart G and discussed in Section 3.5.4 of this manual.

[h] Alternatively, these devices may comply with the organic monitoring device provisions listed at the end of this table under "All Recovery Devices."

Each owner or operator must maintain a record of the transfer rack vent system which lists all valves and vent streams that could divert the vent stream from the control device. The valves which are secured by car-seals or lock-and-key type configurations and the position of these valves must be identified.

The owner or operator of a Group 1 or Group 2 transfer rack must record and update annually an analysis demonstrating the design and actual annual throughput of the transfer rack, the weight-percent organic HAP of the liquid loaded, and the annual rack weighted average HAP vapor pressure. For Group 2 transfer racks that only transfer organic HAP's with vapor pressures less than 10.3 kilopascals, the owner or operator must only document each individual HAP that is transferred. For Group 2 transfer racks that transfer organic HAP's with vapor pressures above and below 10.3 kilopascals, the owner or operator must calculate and document the rack weighted average vapor pressure.

6.4 TRANSFER OPERATIONS INSPECTION PROCEDURES

Table 6-4 presents a checklist that can be used to verify if a transfer rack is in compliance with the transfer provisions of the HON. The table lists the specific records and reports that a facility needs to keep for each of the control and recovery devices that are likely to be used for compliance. The owner or operator may comply using a control device other than those listed in Table 6-4 or may request to monitor parameters other than those specified in Table 6-4. In these cases, the inspector should verify that the facility obtained approval from the Administrator (or agency to which authority has been delegated) and then verify that the approved parameters are recorded and reported.

6.5 REFERENCES

1. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Stationary Source Compliance Division. Level II Inspection Manual: Benzene Transfer Operation. Washington, DC. January 1993.

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

Complete this form for transfer racks. A "yes" response to all questions will indicate full compliance, and a "no" response will indicate noncompliance with the standard except where noted. Note that for transfer racks, a combustion or recovery device can be used to reduce emissions by 98 percent or to 20 ppmv. Vapor balancing can also be used to comply.

CONTROL DEVICE ____________________

DATE OF STARTUP ____________________

REVIEW OF RECORDS

IF THE CONTROL DEVICE IS A FLARE

1.	Results of the initial test were submitted in the NCS.[a]	Y ☐	N ☐
2.	The presence of a continuous flare pilot flame is monitored using a heat sensing device designed to detect the presence of a flame.	Y ☐	N ☐
3.	All periods when the flare pilot did not have a flame have been recorded and reported in the PR.[b]	Y ☐	N ☐

IF THE CONTROL DEVICE IS A THERMAL INCINERATOR

1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	A temperature monitoring device equipped with a continuous monitor is used to measure the temperature of the gas stream in the firebox (or in the ductwork immediately downstream of the firebox before any substantial heat exchange occurs).	Y ☐	N ☐
4.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[d] of firebox temperature are kept.[c]	Y ☐	N ☐
6.	Records of daily average firebox temperature are kept.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

7.	All daily average firebox temperatures that are outside the site-specific established range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
9.	If the firebox temperature is not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #9 is checked "Yes", the facility is in compliance even if numbers 3 through 8 are checked "No".]		
IF THE CONTROL DEVICE IS A CATALYTIC INCINERATOR			
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	Temperature monitoring devices equipped with continuous recorders are used to measure the temperature in the gas stream immediately before and after the catalyst bed.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the gas stream temperature upstream of the catalyst bed and the temperature difference across the bed was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[d] are kept of the temperature of the gas stream upstream of the catalyst bed and the temperature difference across the catalyst bed.[c]	Y ☐	N ☐
6.	Records of the daily average temperature upstream of the catalyst bed and the temperature difference across the catalyst bed are kept.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

7.	All daily average upstream temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	All daily average temperature differences across the catalyst bed that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
9.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
10.	If the temperature upstream of the catalyst bed and/or the temperature differential across the catalyst bed are not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #10 is checked "Yes", the facility is in compliance even if numbers 3 through 9 are checked "No".]		
	IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY LESS THAN 44 MEGAWATTS AND THE VENT STREAM IS NOT INTRODUCED WITH THE PRIMARY FUEL		
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
3.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
4.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
5.	A temperature monitoring device equipped with a continuous monitor is used to measure the temperature of the gas stream in the firebox.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

6.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
7.	Continuous records[d] are kept of the firebox temperature.[c]	Y ☐	N ☐
8.	Records of the daily average firebox temperature are kept.	Y ☐	N ☐
9.	All daily average firebox temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
11.	If the firebox temperature is not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #11 is checked "Yes", the facility is in compliance even if numbers 5 through 10 are checked "No".]		
	IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY GREATER THAN 44 MEGAWATTS		
1.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
2.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
	IF THE CONTROL DEVICE IS A SCRUBBER (FOLLOWING A COMBUSTOR FOR A HALOGENATED VENT STREAM)		
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

2.	Either (1) test documentation demonstrates 99 percent control efficiency for total halogens and hydrogen halides or test documentation demonstrates that the outlet mass of total hydrogen halides and halogens are less than 0.45 kilograms per hour, or (2) if the scrubber was installed prior to December 31, 1992, test documentation demonstrates 95 percent control efficiency for total halogens and hydrogen halides or test documentation demonstrates that the outlet mass of total hydrogen halides and halogens are less than 0.45 kilograms per hour.	Y ☐	N ☐
3.	A pH monitoring device equipped with a continuous recorder is used to monitor the pH of the scrubber effluent.	Y ☐	N ☐
4.	A flow meter equipped with a continuous recorder is used to measure the influent liquid flow and effluent vapor flow.	Y ☐	N ☐
5.	Documentation to establish a site-specific range for the pH, and liquid/gas ratio was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
6.	Continuous records[d] of the pH of the scrubber effluent are kept.	Y ☐	N ☐
7.	Continuous records[d] of the scrubber liquid/gas ratio are kept.[c]	Y ☐	N ☐
8.	Records of the daily average pH and the daily average liquid/gas ratio are kept.	Y ☐	N ☐
9.	All daily average pH values of the scrubber effluent that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	All daily average scrubber liquid/gas ratios that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
11.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
12.	If the pH and/or the scrubber liquid to gas ratio are not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #12 is checked "Yes", the facility is in compliance even if numbers 3 through 11 are checked "No".]		

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

IF THE RECOVERY DEVICE IS A CARBON ADSORBER			
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	An integrating regeneration stream (e.g., steam) flow monitoring device having an accuracy of $\pm$10 percent and capable of recording total regeneration stream mass flow for each regeneration cycle is used to measure regeneration stream flow.	Y ☐	N ☐
4.	A carbon bed temperature monitoring device capable of recording the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle is used to measure carbon bed regeneration temperature.	Y ☐	N ☐
5.	Documentation to establish a site-specific range for the regeneration stream flow and carbon bed regeneration temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
6.	Records are kept of the total regeneration stream mass flow for each carbon bed regeneration cycle.	Y ☐	N ☐
7.	Records are kept of the temperature of the carbon bed after each carbon bed regeneration.	Y ☐	N ☐
8.	All regeneration cycles when the total regeneration stream mass flow is outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
9.	All regeneration cycles during which the temperature of the carbon bed after regeneration is outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

11.	If the regeneration stream flow and/or the carbon bed regeneration temperature are not monitored, either:		
(a)	The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with items [(b) and (c) and (d)].	Y ☐	N ☐
(b)	Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
(c)	Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
(d)	All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #11(a) is checked "Yes", or if 11(b) and 11(c) and 11(d) are checked "Yes", the facility is in compliance even if numbers 3 through 10 are checked "No".]		
IF THE RECOVERY DEVICE IS AN ABSORBER			
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	A temperature monitoring device and a specific gravity monitoring device equipped with a continuous monitor are used to measure the exit temperature of the scrubbing liquid and the exit specific gravity.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the exit temperature of the scrubbing liquid and exit specific gravity was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
5.	Records of the daily average exit temperature of the scrubbing liquid and exit specific gravity are kept.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

6.	Continuous records[d] of the exit temperature of the absorbing liquid are kept.[c]	Y ☐	N ☐
7.	Continuous records[d] of the exit specific gravity are kept.	Y ☐	N ☐
8.	All daily average exit temperatures of the absorbing liquid that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
9.	All daily average exit specific gravity values that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
11.	If the exit temperature and/or the exit specific gravity are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with items [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #11(a) is checked "Yes", <u>or</u> if 11(b) <u>and</u> 11(c) <u>and</u> 11(d) are checked "Yes", the facility is in compliance even if numbers 3 through 10 are checked "No".]		
IF THE RECOVERY DEVICE IS A CONDENSER			
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	A temperature monitoring device equipped with a continuous recorder is used to measure the product side exit temperature.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the exit temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
5.	Records of the daily average exit temperature are kept.	Y ☐	N ☐
6.	Continuous records[d] of the exit temperature are kept.[c]	Y ☐	N ☐
7.	All product side daily average exit temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
9.	If the exit temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with items [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #9(a) is checked "Yes", <u>or</u> if 9(b) <u>and</u> 9(c) <u>and</u> 9(d) are checked "Yes", the facility is in compliance even if numbers 3 through 8 are checked "No".]		

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

IF THE RECOVERY DEVICE IS A VAPOR-BALANCING SYSTEM AND THE LOADING OPERATION IS SUBJECT TO HON TRANSFER PROVISIONS[f]

1.	Records are kept of all parts of any vapor-balancing system that are designated as either unsafe-to-inspect or difficult-to-inspect.		Y ☐	N ☐
2.	For equipment that is designated as difficult to inspect, a written plan is kept that requires inspection of equipment at least once every five years.		Y ☐	N ☐
3.	For equipment that is designated as unsafe to inspect, a written plan is kept that requires inspection of equipment as frequently as practicable.		Y ☐	N ☐
4.	For each inspection during which a leak was detected, the following information is recorded and reported.			
	(a)	Instrument identification numbers, operator name or initials, and equipment identification information;	Y ☐	N ☐
	(b)	The date the leak was detected and the date of the first attempt to repair it;	Y ☐	N ☐
	(c)	Maximum instrument reading after the leak is repaired or determined to be non-repairable;	Y ☐	N ☐
	(d)	Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered;	Y ☐	N ☐
	(e)	Name or initials of person who decides repairs cannot be made without a shutdown;	Y ☐	N ☐
	(f)	Expected date of successful repair if not repaired within 15 days;	Y ☐	N ☐
	(g)	Dates of shutdowns that occur while the equipment is unrepaired; and	Y ☐	N ☐
	(h)	Date of successful repair of the leak.	Y ☐	N ☐
5.	For each inspection during which no leaks were detected, the following records are kept:		Y ☐	N ☐
	(a)	Record that the inspection was performed;	Y ☐	N ☐
	(b)	Date of the inspection; and	Y ☐	N ☐
	(c)	Statement that no leaks were found.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

GENERAL - FOR ANY CONTROL DEVICE, RECOVERY DEVICE, OR VAPOR-BALANCING SYSTEM

Note: Items #1 through #4 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.	Hourly records are kept of whether the flow indicator in the bypass line was operating and whether flow was detected at any time during the hour, when seal mechanisms are not used, and	Y ☐	N ☐
2.	The time and duration of all periods when flow is diverted or the monitor is not operating are reported in the PR when seal mechanisms are not used [or #3 and #4].	Y ☐	N ☐
3.	Records of monthly inspections are kept when seal mechanisms are used and	Y ☐	N ☐
4.	All periods when the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out are recorded and reported in the PR when seal mechanisms are used.	Y ☐	N ☐
	[Note: In order to be in compliance with provisions for bypass lines either: #1 and #2 must both be checked "Yes" or both #3 and #4 must be checked "Yes".]		
5.	All tank trucks and railcars have a current DOT pressure test certification in accordance with the requirements of 49 CFR 180 for tank trucks or 49 CFR 173.31 for railcars or have been demonstrated to be vapor-tight within the preceding 12 months.[g]	Y ☐	N ☐
	[Note: Items #6 through #10 do not apply to vapor collection systems that are operated under negative pressure.]		
6.	Records are kept of all parts of any vapor-collection system that are designated as either unsafe-to-inspect or difficult-to-inspect.	Y ☐	N ☐
7.	For equipment that is designated as difficult to inspect, a written plan is kept that requires inspection of equipment at least once every five years.	Y ☐	N ☐
8.	For equipment that is designated as unsafe to inspect, a written plan is kept that requires inspection of equipment as frequently as practicable.	Y ☐	N ☐
9.	For each inspection during which a leak was detected, the following information is recorded and reported.		
	(a) Instrument identification numbers, operator name or initials, and equipment identification information;	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

	(b)	The date the leak was detected and the date of the first attempt to repair it;	Y ☐	N ☐
	(c)	Maximum instrument reading after the leak is repaired or determined to be non-repairable;	Y ☐	N ☐
	(d)	Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered;	Y ☐	N ☐
	(e)	Name or initials of person who decides repairs cannot be made without a shutdown;	Y ☐	N ☐
	(f)	Expected date of successful repair if not repaired within 15 days;	Y ☐	N ☐
	(g)	Dates of shutdowns that occur while the equipment is unrepaired; and	Y ☐	N ☐
	(h)	Date of successful repair of the leak.	Y ☐	N ☐
10.	For each inspection during which no leaks were detected, the following records are kept:			
	(a)	Record that the inspection was performed;	Y ☐	N ☐
	(b)	Date of the inspection; and	Y ☐	N ☐
	(c)	Statement that no leaks were found.	Y ☐	N ☐
GENERAL - FOR GROUP 1 AND GROUP 2 TRANSFER RACKS				
1.	Records are kept of the design and actual annual throughput of the loading rack, the weight percent HAP of liquid loaded, and the annual rack weighted average HAP vapor pressure.		Y ☐	N ☐
VISUAL INSPECTION				
1.	A flow indicator is present at the entrance to any bypass line that could divert the vent stream flow away from the control device to the atmosphere <u>or</u> all bypass line valves are sealed in a closed position (e.g., with a car seal or lock-and-key configuration).		Y ☐	N ☐
2.	For flares, a device for detecting the flame is present.		Y ☐	N ☐
3.	For all incinerators, and for boilers and process heaters with design heat input capacities less than 44 megawatts and the vent steam is not introduced with the primary fuel, a temperature monitoring device is present.		Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

4.	For scrubbers used after combustors for halogenated vent streams, a device for measuring pH and a device for measuring flow are present.	Y □	N □
5.	For carbon adsorbers, a device for measuring carbon bed temperature and a device for measuring regeneration stream flow are present [or #8].	Y □	N □
6.	For absorbers, a device for measuring exit liquid temperature and a device for measuring exit specific gravity are present [or #8].	Y □	N □
7.	For condensers, a temperature monitoring device is present [or #8].	Y □	N □
8.	If the monitoring devices listed in items 5 through 7 are not present, an organic compounds monitor is present. [Note: If item #8 is checked "Yes", the facility is in compliance even if numbers 5 through 7 are checked "No".]	Y □	N □
9.	Visual inspection of the facility is consistent with written records.	Y □	N □

[a] NCS = Notification of Compliance Status.

[b] PR = Periodic Reports.

[c] For transfer racks that transfer less than 11.8 million liters per year of liquids containing organic HAP's, the owner or operator may conduct a design evaluation and monitor the design parameters instead of conducting a performance test.

[d] Continuous records, as defined in §63.111, means documentation, either in computer readable form or hard copy, or data values measured at least once every 15 minutes and recorded at the frequency specified in §63.152(f). Section 63.152(f) allows the owner to record either values measured every 15 minutes or 15-minute (or shorter period) block average values calculated from all measured values during each period. If the daily average value of a monitored value for a given parameter is within the range established in the NCS, the owner or operator may retain block hourly averages instead of the 15-minute values. An owner or operator may request approval to use alternatives to continuous monitoring under §63.151(g) of Subpart G.

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

[e] The number of excused excursions is as follows:

For the first semi-annual period after the NCS is due - 6 excursions;
For the second semi-annual period - 5 excursions;
For the third semi-annual period - 4 excursions;
For the fourth semi-annual period - 3 excursions;
For the fifth semi-annual period - 2 excursions;
For the sixth and all subsequent semi-annual periods - 1 excursion.

An excursion occurs when: (1) the daily average value of the monitored parameter is outside the range established in the NCS or operating permit; or (2) if monitoring data are insufficient. In order to have sufficient data, a source must have measured values for each 15-minute period within each hour for at least 75 percent of the hours the control device is operating in a day. For example, if a control device operates 24 hours per day, data must be available for all 15-minute periods in at least 18 hours; but up to 6 hours may have incomplete data. If more than 6 hours have incomplete data, an excursion has occurred. For control devices that operate less than 4 hours a day, one hour of incomplete data is allowed.

[f] Under §63.111(d)(2) of Subpart G, the owner or operator may be exempt from the transfer provisions during operations during which vapor balancing is used. However, the owner or operator may elect to designate the rack as a transfer rack subject to the HON and comply with the provisions of §63.126 through §63.130 during operations when vapor balancing is used. For example, an owner or operator may elect to be subject in order to include the rack in an emissions average.

[g] This requirement does not apply for operations during which a vapor balancing system is used.

NOTE ALL DEFICIENCIES

SECTION 7
STORAGE VESSELS

7.1 DESCRIPTION OF EMISSION POINT

Two types of storage vessels are of concern in inspecting a SOCMI facility: fixed-roof storage vessels (i.e., with no internal floating roof) and floating roof storage vessels. They are exclusively above-ground and cylindrical in shape with the axis perpendicular to the foundation. There are also horizontal tanks, but these are generally smaller and not as widely used.

7.1.1 Fixed-Roof Storage Vessel

A typical fixed-roof vessel is a cylindrical steel shell with a cone- or dome-shaped roof permanently affixed to it. Refer to Section 4.1.1 and Figure 4-1 of the Benzene Storage Inspection Manual[1] for a description of typical fixed-roof vessels and their potential emission points. As described in the Benzene Storage Inspection Manual[1], most emissions from these vessels are released through roof vents. Gauge hatches/sample wells, float gauges, and roof manholes on the fixed roof, which provide access to these tanks, also are potential, but less significant sources of emissions.

7.1.2 Floating Roof Storage Vessel

A floating roof vessel is a cylindrical steel shell equipped with a disk-shaped deck with a diameter slightly less than the inside tank diameter. The floating deck floats freely on the surface of the stored liquid, rising and falling with the liquid level. The liquid surface is completely covered by the floating deck, except in the small annular space between the deck and the shell. A rim seal attached to the floating deck slides against the vessel wall as the deck is raised or lowered, covering the annular space where the deck is not covering the liquid. Refer to Section 4.1.2 and Figure 4-2 of the Benzene Storage Inspection Manual[1] for a general description of a floating roof vessel and a general discussion of emissions from these vessels.

For compliance with the storage vessel provisions, the HON allows three specific types of floating roof storage vessels: an external floating roof (EFR) vessel, an internal floating roof (IFR) vessel (i.e., a fixed roof vessel with an IFR), and an EFR vessel converted to an IFR vessel (i.e., a fixed roof installed above an EFR). These floating roof storage vessel types are described below. Each discussion refers to specific sections and figures in the Benzene Storage Inspection Manual[1] for more detail. The sections referred to in the Benzene Storage Inspection Manual[1] include discussions about the requirements of the Benzene Storage NESHAP and descriptions of the vessel types. In some cases, the requirements in the HON will differ from the requirements of the Benzene Storage NESHAP.

7.1.2.1 External Floating Roof Vessel

An EFR vessel does not have a fixed roof; instead, its floating deck is the only barrier between the stored liquid and the atmosphere. An EFR vessel may have several types of rim seals and deck fittings. Refer to Section 4.1.2.1 and Figure 4-4 of the Benzene Storage Inspection Manual[1] for a description of a typical EFR vessel and associated emissions. In reviewing the Benzene Storage Inspection Manual,[1] note that two types of deck fittings, a gauge hatch and a sampling port, are not shown in Figure 4-4, but are mentioned in Section 4.1.2.1. Rim seals associated with EFR vessels are described in Section 4.1.2.3 of the Benzene Storage Inspection Manual[1] and the associated figures.

7.1.2.2 Internal Floating Roof Vessel

An IFR vessel is equipped with a permanently affixed roof above the floating deck. Refer to Section 4.1.2.2 and Figure 4-5 of the Benzene Storage Inspection Manual[1] for details. In reviewing Figure 4-5, note that the deck fittings and the rim space vent for a mechanical shoe seal are not shown. A rim space vent is illustrated in Figure 4-4 of the Benzene Storage Inspection Manual[1] for an EFR vessel, and would be the same on an IFR vessel equipped with a mechanical shoe seal. Seals ·ociated with IFR vessels are described in Section 4.1.2.3 of the Benzene Storage Inspection Manual[1] the associated figures.

2.3 External Floating Roof Vessel Converted to an Internal Floating Roof Vessel

The HON specifies that an EFR vessel may be converted to an IFR vessel in order to comply with the storage provisions. This conversion is accomplished by affixing a permanent roof to an EFR vessel, above the floating deck, and equipping the EFR with a seal mechanism equivalent to those required for an IFR. These converted vessels would have the external appearance of an internal floating roof vessel, deck fittings required for an external floating roof vessel, and a rim seal with the characteristics of an IFR vessel. In the Benzene Storage Inspection Manual,[1] Figure 4-5 shows the characteristics of the permanently affixed roof applicable to a vessel converted from an EFR to an IFR, and Figure 4-4 shows the characteristics of the floating deck applicable to an EFR converted to an IFR. The types of seals applicable to an EFR converted to an IFR would be the same as those for an IFR vessel described in Section 4.1.2.3 of the Benzene Storage Inspection Manual[1] and its associated figures.

7.2 DESCRIPTION OF EMISSION CONTROL TECHNOLOGIES

The control techniques to reduce emissions from storage vessels include equipment designs (e.g., seal design and fittings closure) and work practices.

7.2.1 Fixed-Roof Vessels

Emissions from a fixed-roof vessel may be reduced by equipping it with either a floating roof (i.e. converting it to an IFR vessel) or by using a closed vent system routed to a 95-percent efficient control device. Under the HON, if a fixed roof vessel is equipped with an IFR, it is considered an IFR vessel and would be required to be equipped with certain controls and meet certain work practices for an IFR as described in Section 7.2.2.

A closed vent system captures the vapors released by the fixed roof vessel and transfers them to a product recovery or combustion control device. Refer to Section 5.2 of this manual for a description of product recovery and combustion control devices. These same devices would be allowed by the storage provisions.

A closed vent system and control device could also be applied to a horizontal tank. Because of the tank configuration, a floating roof cannot be applied to a horizontal tank.

7.2.2 Floating Roof Vessels

As discussed in Section 7.1.2, the three types of floating roof vessels are IFR vessels, EFR vessels, and EFR vessels converted to IFR vessels.

There are three methods for controlling emissions from floating roof vessels: applying controls to deck fittings, employing certain types of seals, and employing certain work practices. Examples of these three methods are to equip the covers on certain deck fittings with gaskets, to equip an EFR or IFR with a liquid-mounted seal instead of a vapor-mounted seal, and to keep all covers associated with deck fittings closed at all times except for access, respectively. Refer to Sections 4.1.2.1 and 4.1.2.2 in the Benzene Storage Inspection Manual[1] for descriptions of the equipment and work practice controls that may be applied to deck fittings on EFR vessels and IFR vessels, respectively. For information on applying controls to the deck fittings of an EFR converted to an IFR, refer to the discussion about controls applied to fittings of EFR vessels in Section 4.1.2.1 of the Benzene Storage Inspection Manual.[1] For a description of the types of seals that can be used to control emissions from floating roof vessels, refer to Section 4.1.2.3 of the Benzene Storage Inspection Manual.[1]

The deck fitting control requirements in the HON are similar but not equivalent to the control requirements of the Benzene NESHAP which are described in the Benzene Storage Inspection Manual.[1]. The HON specifies a few additional deck fitting controls that are not discussed in the Benzene Storage Inspection Manual.[1] For example, for EFR vessels, the HON specifies the following three additional controls: (1) roof drains must have a slotted membrane fabric cover that covers 90 percent of the area of the opening, (2) openings with covers must be bolted when closed, and (3) guide pole wells must have a sliding cover or flexible fabric sleeve seal and, if the guide pole is slotted, a gasketed float inside the guide pole. For IFR vessels, the HON specifies the following two additional controls: (1) ladder wells must have a gasketed sliding cover, and (2) rim vents must be gasketed and closed except when the IFR is not floating on the stored liquid or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting. Sections 4.1.2.1 and 4.1.2.2 in the Benzene Storage Inspection

Manual[1] should be consulted to gain familiarity with the control options for deck fittings on floating roof vessels.

7.3 STORAGE VESSEL PROVISIONS

This section summarizes the storage vessel provisions in §63.119 through §63.123 of Subpart G.

7.3.1 Storage Vessel Definition

A "storage vessel" is a tank or other vessel that is used to store liquid organic HAP's and is assigned to a chemical manufacturing process subject to the HON. Storage vessels do not include vessels permanently attached to motor vehicles, pressure vessels, vessels with capacities less than 38 m^3, or vessels storing liquids that contain organic HAP's only as impurities.

7.3.2 Storage Vessel Group Determination

Group 1 and Group 2 storage vessels are defined in §63.119 of Subpart G. The vessel's design capacity and the vapor pressure of the stored liquid are used to determine whether a storage vessel is Group 1 or Group 2. Table 7-1 is a checklist for applicability and group determination for storage vessels. Section I of the table presents a set of true/false statements which can be used to determine if a storage vessel is subject to the storage vessel provisions of the HON. Sections II and III of Table 7-1 can be used to determine if a storage vessel subject to the storage vessel provisions of the HON is Group 1 or Group 2. Section II pertains to storage vessels at new sources, and Section III pertains to storage vessels at existing sources. Group 1/Group 2 determinations are required for each storage vessel that is subject to the storage vessel provisions, unless the storage vessel is already in compliance with the Group 1 requirements.

Storage vessels that are not subject to the storage vessel provisions may be subject to the equipment leak provisions in Subpart H (NESHAP for SOCMI equipment leaks) or the wastewater provisions in Subpart G, as noted in the checklist.

7.3.3 Storage Vessel Control Requirements

Group 1 storage vessels must meet the control requirements in §63.119 of Subpart G unless they are included in an emissions average. Compliance options for Group 1 storage vessels include:

- Reducing emissions of organic HAP's using a fixed-roof tank equipped with an internal floating roof which is operated according to specified work practices (e.g., keeping access hatches closed and bolted), equipped with specified deck fittings, and equipped with specified seal configurations (i.e., a single liquid-mounted seal, a single metallic shoe seal, or double seals);
- Reducing emissions of organic HAP's using an external floating roof tank operated according to specified work practices, equipped with specified deck

TABLE 7-1. APPLICABILITY AND GROUP DETERMINATION CHECKLIST FOR STORAGE VESSELS

I.	Storage Vessel Applicability			
	a.	The storage vessel stores organic HAP for a chemical manufacturing process subject to the HON.	T ☐	F ☐
	b.	The capacity of the storage vessel is greater than or equal to 38 m^3.	T ☐	F ☐
	c.	The storage vessel is not a pressure vessel designed to operate in excess of 204.9 kPa and without emissions to the atmosphere.	T ☐	F ☐
	d.	The organic HAP's stored in the vessel are not considered impurities.	T ☐	F ☐
	e.	The storage vessel is not a product accumulator vessel.[a]	T ☐	F ☐
	f.	The storage vessel is not permanently attached to a motor vehicle.	T ☐	F ☐
	g.	The storage vessel is not a wastewater storage tank.[b]	T ☐	F ☐

Is the storage vessel subject to the HON storage vessel provisions?

☐ Yes: If all of the statements above are true, the storage vessel is subject to the storage vessel provisions in Subpart G of the HON.

☐ No: If any of the statements above are false, the storage vessel is not subject to the storage vessel provisions in Subpart G of the HON.

II.	Group Determination For Storage Vessels at New Sources[c,d]			
	(Complete this portion only if the answer to Section I is "yes".)			
	a.	The storage vessel capacity is greater than or equal to 151 m^3, and the vapor pressure of the stored organic HAP is greater than or equal to 0.7 kPa.[e]	T ☐	F ☐
	b.	The storage vessel capacity is greater than or equal to 38 m^3 and less than 151 m^3, and the vapor pressure of the stored organic HAP is greater than or equal to 13.1 kPa.[e]	T ☐	F ☐

(continued)

TABLE 7-1. APPLICABILITY AND GROUP DETERMINATION CHECKLIST FOR STORAGE VESSELS

Is the storage vessel Group 1?

□ Yes: The storage vessel is Group 1 if either of the above statements is true.

□ No: The storage vessel is Group 2 if both of the above statements are false.

III. Group Determination For Storage Vessels at Existing Sources[c,f]

(Complete this portion only if the answer to Section I is "yes".)

		T	F
a.	The storage vessel capacity is greater than or equal to $151 m^3$ and the vapor pressure of the stored organic HAP is greater than or equal to 5.2 kPa.[e]	T □	F □
b.	The storage vessel capacity is greater than or equal to $75 m^3$ and less than $151 m^3$, and the vapor pressure of the stored organic HAP is greater than or equal to 13.1 kPa.[e]	T □	F □

Is the storage vessel Group 1?

□ Yes: The storage vessel is Group 1 if either of the above statements is true.

□ No: The storage vessel is Group 2 if both of the above statements are false.

---

a If false, the emission point may be subject to the equipment leak provisions in Subpart H of the HON.

b If false, the emission point may be subject to the wastewater provisions in Subpart G of the HON.

c Group 1 storage vessels must meet the control requirements in Section 63.119 of Subpart G of the HON, unless they are included in an emissions average. Group 2 storage vessels are not required to apply additional controls.

d A "new" source refers to a source (not a storage vessel) that commenced construction or reconstruction after December 31, 1992.

e "Vapor pressure" refers to the maximum true vapor pressure of total organic HAP at storage temperature.

f An "existing" source refers to a source (not a storage vessel) that commenced construction or reconstruction before December 31, 1992.

fittings, and equipped with specified seal configurations (i.e., double seals, with the primary seal to be either a liquid-mounted or a metallic shoe seal);

- Reducing emissions of organic HAP's using an external floating roof tank converted to a fixed-roof tank equipped with an internal floating roof, which is operated according to specified work practices, equipped with specified deck fittings, and equipped with specified seal configurations (i.e., a single liquid-mounted seal, a single metallic shoe seal, or double seals); or

- Reducing emissions of organic HAP's by 95 weight percent using a closed vent system (i.e., vapor collection system) and control device (or reducing emissions of organic HAP's by 90 weight percent using a closed-vent system and control device if the control device was installed before December 31, 1992).

A detailed list of the work practices and deck fittings specified for internal floating roof vessels, external floating roofs, and external floating roof vessels converted to internal floating roof vessels is provided in Table 7-2, which is discussed in the next section.

Group 2 storage vessels are not required to apply any emission controls, but recordkeeping and reporting is required to verify that they are Group 2.

7.3.4 Storage Vessel Testing, Monitoring, Recordkeeping, and Reporting

Compliance determination for storage vessels using floating roofs is different than for process vents and transfer operations in that performance testing and continuous monitoring are not required. Instead, periodic inspections of the floating roofs and their seals and fittings are required, and any defects must be repaired within specified time periods.

For both Group 1 and Group 2 storage vessels, a record must be kept which provides the dimensions and an analysis showing the capacity of each Group 1 and Group 2 storage vessel. For Group 2 storage vessels, this recordkeeping requirement is the only requirement under the HON, unless the vessel is included in an emission average.

Initial testing for visible emissions (i.e., as specified in §63.11(b) of Subpart A) is required for Group 1 storage vessels controlled with flares. The initial testing is not a performance test, but is a compliance determination. The compliance determination also involves gathering data such as the heat content, the flow rate, and the exit velocity for all periods when the pilot flame is absent. The initial recordkeeping and reporting (i.e., as part of the Notification of Compliance Status) includes records and reports of flare design; visible emission readings and measurements of the heat content, the flow rate, and the exit velocity made during the compliance determination; and, periods when the pilot flame is absent.

Initial performance tests are not required for vapor collection systems or control devices other than flares. Instead, a report is required to be submitted as part of the Implementation Plan which demonstrates that the control device being used achieves the required percent reduction, during reasonably expected maximum loading conditions. This documentation must include a design evaluation of the control device and a description of the gas stream which enters the control device, including flow and organic HAP content under varying liquid level conditions (dynamic and static). This documentation is not required for enclosed combustion devices with a minimum residence time of 0.5 seconds and a temperature of at least 760°C. For thermal incinerators, carbon adsorbers, and condensers, the design evaluation must include additional information specified in the storage provisions under §63.120(d)(1). If the control device used to comply with the storage provisions is also used to comply with the process vent, transfer, or wastewater provisions, the performance test required by the process vent, transfer, or wastewater provisions is acceptable to demonstrate compliance with the storage provisions and a design evaluation would not be required.

As part of the Implementation Plan, the owner or operator must also submit the following: (1) a description of the parameter(s) to be monitored to ensure that the control device is operated and maintained in conformance with its design, (2) an explanation of the criteria used for selection of the parameter(s), and (3) the frequency with which monitoring will be performed. The owner or operator must submit in the Notification of Compliance Status the operating range for each monitoring parameter identified in the Implementation Plan. This specified operating range must represent the conditions for which the control device can achieve the 95 percent or greater emission reduction, or a 90 percent or greater emission reduction if installed prior to December 31, 1992.

Initial performance testing is not required for Group 1 storage vessels equipped with an internal floating roof, an external floating roof, or external floating roof converted to an internal floating roof. However, for external floating roof vessels, an initial measurement of seal gap area and maximum seal gap width for both the primary seal and the secondary seal is required to be performed and recorded during the hydrostatic testing of the vessel or by the compliance date, whichever is later, and to be reported in the first periodic report.

Periodic inspection, measurement, recordkeeping, and reporting requirements for storage vessels equipped with an internal floating roof, an external floating roof, or an external floating roof converted to an internal floating roof are presented in Table 7-2. Continuous and periodic monitoring, recordkeeping, and reporting requirements associated with closed vent systems and control devices for storage vessels are presented in Table 7-3. Included in the tables are both "periodic reports", which are submitted semi-annually, and "other reports", which are submitted as needed, on an irregular basis.

The HON also requires periodic inspection of closed vent systems to detect leaks. The provisions are specified in §63.148 of Subpart G.

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TABLE 7-2. PERIODIC INSPECTION, MEASUREMENT, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR STORAGE VESSELS EQUIPPED WITH AN INTERNAL FLOATING ROOF VESSEL, AN EXTERNAL FLOATING ROOF, OR AN EXTERNAL FLOATING ROOF VESSEL CONVERTED TO AN INTERNAL FLOATING ROOF VESSEL

Control Device	Type and Frequency of Inspection or Measurement[a]	Parameters to be Inspected or Measured	Recordkeeping and Reporting for Inspected or Measured Parameters
IFR or EFR converted to IFR[b]	External Visual Inspection[c,d] (performed annually) [For vessels equipped with a single-seal system: 63.120(a)(2)(i)] [For vessels equipped with a double-seal system: 63.120(a)(3)(ii)]	Seal[e], floating deck	1. Record and report the date of the inspection - PR[f] 2. Record and report each storage vessel in which a failure was detected and a description of the failure - PR Seal failures include the following: (1) the seal is detached from the floating deck, (2) holes, tears, or other openings in the seal or seal fabric, and (3) any visible gaps between the seal and the wall of the storage vessel. Floating deck failures include the following: (1) the IFR is not resting on the surface of the liquid storage in the storage vessel and is not resting on the leg supports, and (2) there is liquid on the floating deck. 3. If a failure is detected and repaired within 45 days, record and report the nature of and date the repair was made - PR 4. If a failure is detected and the vessel is not emptied for repair within 45 days, the owner or operator may choose to utilize up to two extensions of 30 days each, in which case the owner or operator must include in the next Periodic Report, documentation that alternate storage capacity was unavailable, a description of the failure, a schedule of actions that ensured that the control equipment was repaired or the storage vessel was emptied as soon as possible, and the nature of and date the repair was made, or the date the storage vessel was emptied - PR

(Continued)

TABLE 7-2. PERIODIC INSPECTION, MEASUREMENT, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR STORAGE VESSELS EQUIPPED WITH AN INTERNAL FLOATING ROOF VESSEL, AN EXTERNAL FLOATING ROOF, OR AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF VESSEL

Control Device	Type and Frequency of Inspection or Measurement[a]	Parameters to be Inspected or Measured	Recordkeeping and Reporting for Inspected or Measured Parameters
IFR or EFR converted to IFR (continued)	Internal Visual Inspection (performed each time a vessel is emptied and degassed, and at least once every 10 years)[c] [For vessels equipped with a single-seal system: 63.120(a)(2)(ii)] [For vessels equipped with a double-seal system: 63.120(a)(3)(iii)]	Seal,[g] floating roof, gaskets, slotted membranes, sleeve seals (if any)	1. Record and report the date of the inspection - PR 2. Record and report each storage vessel in which a failure was detected and a description of the failure - PR Seal failures include any holes, tears, or other openings in the seal or seal fabric.[g] Floating roof failures include any defect of the floating deck. Gasket failures include any time that a gasket no longer closes off the liquid surface to the atmosphere. Slotted membrane failures includes any time that a slotted membrane has more than 10 percent open area. 3. If a failure is detected and repaired, record and report the nature of the repair and the date the repair was made prior to refilling the storage vessel - PR 4. Prior to each inspection, report the date that the vessel will be refilled after the inspection, in order to afford the Administrator the opportunity to have an observer present; keep a record of this report[h] - OR

(Continued)

TABLE 7-2. PERIODIC INSPECTION, MEASUREMENT, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR STORAGE VESSELS EQUIPPED WITH AN INTERNAL FLOATING ROOF VESSEL, AN EXTERNAL FLOATING ROOF, OR AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF VESSEL

Control Device	Type and Frequency of Inspection or Measurement[a]	Parameters to be Inspected or Measured	Recordkeeping and Reporting for Inspected or Measured Parameters
EFR	Seal Gap Measurement[i] [63.120(b)(1) through (b)(4)], which includes a visual seal inspection [63.120(b)(5) and (b)(6)] (performed at least once every 5 years for the primary seal and annually for the secondary seal)	Primary seal and secondary seal	1. Record and report the date of the measurement - PR 2. Record and report the raw data obtained in the measurement (the width and circumferential length of each gap with a width equal to or greater than 0.32 centimeters), and the calculations of the accumulated area of gaps between the vessel wall and both the primary and secondary seal - PR 3. Record and report each occurrence when the following conditions are identified during the measurement: - PR (a) The accumulated area of gaps or maximum gap width between the vessel wall and either the primary or secondary seal exceeds specified values[j] (b) If the primary seal is a metallic shoe seal, the upper end of the metallic shoe seal does not extend a minimum vertical distance of 61 centimeters above the stored liquid surface (c) If the primary seal is a metallic shoe seal, the lower end of the metallic shoe seal does not extend into the liquid (d) There are holes, tears, or other openings in the shoe (if a metallic shoe seal is used), seal fabric, or seal envelope of the primary seal (e) There are holes, tears, or other openings in the seal or seal fabric of the secondary seal

(Continued)

TABLE 7-2. PERIODIC INSPECTION, MEASUREMENT, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR STORAGE VESSELS EQUIPPED WITH AN INTERNAL FLOATING ROOF VESSEL, AN EXTERNAL FLOATING ROOF, OR AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF VESSEL

Control Device	Type and Frequency of Inspection or Measurement[a]	Parameters to be Inspected or Measured	Recordkeeping and Reporting for Inspected or Measured Parameters
EFR (continued)	Seal Gap Measurement[l] [63.120(b)(1) through (b)(4)], which includes a visual seal inspection [63.120(b)(5) and (b)(6)]	Primary and Secondary Seal (continued)	4. If any of the conditions described in items 3(a) through 3(e) are identified during a measurement and the repair was completed within 45 days of the measurement, record and report the nature of the repair and the date the repair was made or the date the storage vessel was emptied - PR
	(performed at least once every 5 years for the primary seal and annually for the secondary seal) (continued)		5. If any of the conditions described in items 3(a) through 3(d) are identified during a measurement and the repair was not completed within 45 days of the measurement, the owner or operator may utilize up to two 30-day extensions, and must record and report in the next PR identification of the vessel, a description of the failure, documentation that alternative storage capacity was not available, a schedule of actions that ensured the control equipment would be repaired or the vessel would be emptied as soon as possible, and the nature of and the date the repair was made, or the date the storage vessel was emptied - PR
			6. Thirty days prior to the seal gap measurement, report the date that the measurement will be made, in order to afford the Administrator the opportunity to have an observer present. Keep a record of this report - OR
	Internal Visual Inspection (performed each time the vessel is emptied and degassed)[k,l] [63.120(b)(10)]	primary seal secondary seal, floating roof, gaskets, slotted membranes[m]	1. Record and report the date of the inspection - PR

(Continued)

TABLE 7-2. PERIODIC INSPECTION, MEASUREMENT, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR STORAGE VESSELS EQUIPPED WITH AN INTERNAL FLOATING ROOF VESSEL, AN EXTERNAL FLOATING ROOF, OR AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF VESSEL

Control Device	Type and Frequency of Inspection or Measurement[a]	Parameters to be Inspected or Measured	Recordkeeping and Reporting for Inspected or Measured Parameters
EFR (continued)	Internal Visual Inspection (performed each time the vessel is emptied and degassed)[k,l] [63.120(b)(10)] (continued)	primary seal secondary seal, floating roof, gaskets, slotted membranes[m] (continued)	2. Record and report each storage vessel in which a failure was detected and a description of the failure - PR Seal failures include any holes, tears, or other openings in the seal of seal fabric. Floating roof failures include any defect of the floating deck. Gasket failures include any time that a gasket no longer closes off the liquid surface to the atmosphere. Slotted membrane failures includes any time that a slotted membrane has more than 10 percent open area. 3. If a failure is detected and repaired, record and report the nature of the repair and the date the repair was made prior to refilling the storage vessel - PR 4. Prior to each inspection, report the date that the vessel will be refilled after the inspection, in order to afford the Administrator the opportunity to have an observer present.[g] Keep a record of this report - OR

[a] Regulatory citations are listed in brackets.

[b] IFR = internal floating roof.
EFR = external floating roof.

[c] If a double-seal rather than single-seal system is used on the IFR or EFR converted to IFR, a source has the option to perform the internal visual inspection [§63.120(a)(3)(i)] each time the vessel is emptied and degassed and at least once every 5 years and not perform annual external visual inspections [§63.120(a)(3)(ii)] or internal visual inspections every 10 years [§63.120(a)(3)(iii)]

[d] External visual inspections are visual inspection of the specified equipment as seen from the fixed roof of a vessel, looking at the specified equipment through the manholes and roof hatches on the fixed roof.

(Continued)

TABLE 7-2. PERIODIC INSPECTION, MEASUREMENT, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR STORAGE VESSELS EQUIPPED WITH AN INTERNAL FLOATING ROOF VESSEL, AN EXTERNAL FLOATING ROOF, OR AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF VESSEL

[e] If a single-seal system is used, inspect the single seal. If a double-seal system is used, inspect the secondary seal.

[f] PR = Periodic reports described in §63.152 of Subpart G, and discussed in Section 3.5.4 of this manual.

[g] If a single-seal system is used, inspect the single seal. If a double-seal system used, inspect both the primary and secondary seals.

[h] If the inspection is planned, this report is due 30 days prior to the refilling. If the inspection was not planned and the report could not be submitted 30 days prior to the refilling, then the report should include an explanation of why the inspection was unplanned.

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

[j] The specified values for the primary seal are:

Accumulated area of gaps between the vessel wall and the seal: 212 square centimeters per meter of vessel diameter.
Maximum gap width between the vessel wall and the seal: 3.81 centimeters.

The specified values for the secondary seal are:

Accumulated area of gaps between the vessel wall and the seal: 21.2 square centimeters per meter of vessel diameter.
Maximum gap width between the vessel wall and the seal: 1.27 centimeters.

[k] The storage provisions do not specify a maximum period of time between these inspections.

[l] Repair each storage vessel in which a failure was detected; however, no recordkeeping or reporting is specified in the storage provisions.

[m] Seal failures include the following: the primary or secondary seal has holes, tears, or other openings in the seal or the seal fabric. Floating roof failures include any defect of the floating deck. Gasket failures include any time that a gasket no longer closes off the liquid surface to the atmosphere. Slotted membrane failures include any time that a slotted membrane has more than 10 percent open area.

TABLE 7-3. PERIODIC AND CONTINUOUS MONITORING, INSPECTION, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR STORAGE VESSELS EQUIPPED WITH A CLOSED VENT SYSTEM AND CONTROL DEVICE

Control Device	Parameters to be Monitored or Inspected[a]	Recordkeeping and Reporting for Monitored or Inspected Parameters
Flare	Meet the general control device requirements specified in §63.11(b) of Subpart A [63.120(e)(4)]	1. Record and report each occurrence when the flare does not meet the general control device requirements specified in §63.11(b) of Subpart A - PR[b] Each record and report of an occurrence when a flare does not meet the general control device requirements should include the following: (1) identification of the flare that did not meet the requirements, and (2) the reason the flare did not meet the general control device requirements. 2. Record and report all routine maintenance of the flare that is planned for the next six months and that was performed during the previous six months - PR 3. Record and report the total number of hours of routine maintenance of the flare during which the flare did not meet the general control device requirements specified in §63.11(b) of subpart A due to the routine maintenance[c] - PR
All Control Devices Other than a Flare	Monitor the parameter or parameters that are specified in the Implementation Plan at the specified frequency[d,e] [63.120(d)(5)]	1. Report and record each occurrence when a monitored parameter is outside of its parameter range (which is documented in the Notification of Compliance Status or the operating permit)[f] - PR The report and record shall include the following information: (1) identification of the control device for which the measured parameter was outside of its established range, and (2) the cause for the measured parameter to be outside of its established range. 2. Record the measured values of the monitored parameters. 3. Record and report all routine maintenance of the control device that is planned for the next six months and that was performed during the previous six months - PR 4. Record and report the total number of hours of routine maintenance of the control device during which the control device did not reduce inlet emissions by 95 percent (or 90 percent if the control device was installed prior to December 31, 1992)[g] - PR

(Continued)

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TABLE 7-3. PERIODIC AND CONTINUOUS MONITORING, INSPECTION, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR STORAGE VESSELS EQUIPPED WITH A CLOSED VENT SYSTEM AND CONTROL DEVICE

Control Device	Parameters to be Monitored or Inspected[a]	Recordkeeping and Reporting for Monitored or Inspected Parameters
All Closed Vent Systems and Control Devices[h]	Annual Leak Inspections of Closed Vent Systems[i] [63.148]	1. Record all parts of the closed vent system that are designated as difficult or unsafe to inspect, with an explanation of the designations and a plan for inspecting the equipment.[i] 2. Record the occurance of each annual inspection. 3. Record and report[j] the results of each annual inspection in which a leak is detected in the closed vent system by an instrument reading of 500 parts per million by volume or greater above background using Method 21 of 40 CFR 60, Appendix A - PR[k] 4. If a leak, as described in item 3, is detected and cannot be repaired within 15 days, and if the circumstances of the repair meet certain criteria, then record and report[j] that there will be a delay, explaining how the circumstances of the repair meet these certain criteria; the expected date of successful repair; dates of shutdowns that occur while the equipment is unrepaired; and date of successful repair.
	Presence of flow diverted from the control device to the atmosphere [63.148(f)(1)] or Monthly inspections of sealed valves [63.148(f)(2)]	1. Hourly records of whether the flow indicator was operating and whether flow was detected at any time during each hour 2. Record and report the times and durations of all periods when the vent stream is diverted through a bypass line or the monitor is not operating - PR or 1. Records that monthly inspections were performed 2. Record and report all monthly inspections that show the valves are not closed or the seal has been changed - PR

[a] Regulatory citations are listed in brackets.

[b] PR = [illegible] ts described in §63.152 of Subpart G, and discussed in Section 3.5.4 of this manual.

(Continued)

[c] The record should include the following detailed information about each routine maintenance period: (1) the first time of day and date that the flare did not meet the general control device requirements specified in §63.11(b) of Subpart A, and (2) the first time of day and date that the control device did meet the general control device requirements specified in §63.11 (b) of Subpart A at the conclusion of maintenance.

[d] The Implementation Plan is described in §63.152 of Subpart G and discussed in Section 3.5.2 of this manual.

[e] The owner or operator must specify a proposed monitoring parameter (or parameters) and monitoring frequency in the Implementation Plan for approval.

[f] The Notification of Compliance Status is described in §63.152 of Subpart G and discussed in Section 3.5.3 of this manual.

[g] The record should include the following detailed information about each routine maintenance period: (1) the first time of day and date that the control device did not achieve the required percent reduction at the beginning of maintenance and (2) the first time of day and date that the control device did achieve the required percent reduction at the conclusion of maintenance. The required percent reduction is 95 percent for control devices installed after December 31, 1992, and 90 percent for control devices installed before December 31, 1992.

[h] A closed vent system is equivalent to a vapor collection system.

[i] For those parts of closed vent systems designated as difficult-to-inspect, the inspection is required once every 5 years as indicated in a written plan. For those parts of closed vent systems designated as unsafe-to-inspect, the inspection is required as frequently as practicable during safe-to-inspect times, as indicated in a written plan.

[j] The reports required for closed-vent systems are to be submitted with the reports required by §63.182(b) of Subpart H (the equipment leak provisions).

[k] The record and report should include the following: (1) instrument identification numbers; (2) operator name or initials; (3) identification of leaking equipment; (4) date the leak was detected; (5) date of first attempt at repair; and (6) maximum instrument reading after leak is repaired or determined to be non-repairable.

[l] The "certain criteria" include the following: (1) the repair would require a process unit shutdown, or (2) the emissions of purged material resulting from immediate repair would be greater than the fugitive emissions associated with the leak, likely to result from delaying the repair.

7.4 STORAGE VESSEL INSPECTION PROCEDURES

Table 7-4 presents a checklist that can be used to verify if a storage vessel is in compliance with the storage provisions of the HON. The table lists the specific records and reports that a facility is required to keep/submit for each type of control equipment used for compliance. The owner or operator may comply using a control technique other than those listed in Table 7-4. In these cases, the inspector should verify that the facility obtained approval from the Administrator (or agency to which authority has been delegated) and then verify that the approved parameters are recorded and reported.

7.5 REFERENCES

1. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Stationary Source Compliance Division. NESHAP Inspection Manual: Benzene Storage Vessels. EPA-455/R-92-006. Washington, DC. September 1991.

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

Complete this form for storage vessels. A "yes" response to all questions will indicate full compliance, and a "no" response will indicate noncompliance with the standard.

CONTROL EQUIPMENT________________________

DATE OF STARTUP________________________

REVIEW OF RECORDS

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF

1. Review records of Seal Gap Measurements.

(a)	Records indicate that seal gap measurements were made annually for the secondary seal and every five years for the primary seal.[a]	Y ☐	N ☐
(b)	When a failure is detected, the date and results of seal gap measurements are submitted in periodic reports, annually for the secondary seal and every five years for the primary seal.	Y ☐	N ☐
(c)	When a failure is detected in the seal(s), the date and results of the visual inspection of the seals (which is performed together with the seal gap measurement) are included in the PR.[b]	Y ☐	N ☐
(d)	The date of the seal gap measurement, the raw data obtained during the measurement, and the calculations made are recorded.	Y ☐	N ☐
(e)	The raw data and calculations recorded for seal gap measurements is consistent with the information reported in the PR.	Y ☐	N ☐
(f)	For each seal gap measurement in a periodic report, there is a report notifying the Administrator of the measurement in advance. If the measurement had been planned, then the report was submitted 30 days in advance of the measurement. If the measurement was not planned, then the report was submitted at least 7 days in advance of the measurement and included an explanation of why the measurement was unplanned.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

	(g)	If a failure was detected during a seal gap measurement and visual seal inspection, the PR indicated the date and the nature of the repair or the date the vessel was emptied.	Y ☐	N ☐
	(h)	If the report described in (g) documents that the repair was made more than 45 days after the failure was detected, then the next PR includes documentation of the use of up to two 30-day extensions for completing the repair, including identification of the storage vessel, a description of the failure, documentation that alternate storage capacity was unavailable, a schedule of actions to be taken to repair the control equipment or empty the vessel as soon as possible, and the date the storage vessel was emptied and the nature of and date the repair was made.	Y ☐	N ☐
2.	Review records of internal visual inspections.			
	(a)	The occurrence of each internal visual inspection is recorded.	Y ☐	N ☐
	(b)	For each internal visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all storage vessels for which failures were detected, (3) a description of those failures, and (4) either the date and nature of the repair or the date the vessel was emptied.	Y ☐	N ☐
	(c)	Any repairs performed as described in (b) were completed before the repaired storage vessel was refilled.	Y ☐	N ☐
	(d)	For each internal visual inspection documented in a PR, there is a report notifying the Administrator in advance of the date the inspected vessel would be refilled after the inspection. If the inspection had been planned, the report was submitted 30 days in advance of refilling the vessel. If the inspection was not planned, then the report was submitted at least 7 days in advance of refilling the vessel and included an explanation of why the inspection was unplanned.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

IF THE CONTROL EQUIPMENT IS AN INTERNAL FLOATING ROOF OR AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF

1.	Review records of external visual inspections			
	(a)	The occurrence of each annual external visual inspection is recorded. If the floating roof is equipped with double seals, the source will not have performed this inspection if it chose to perform internal visual inspections once every 5 years instead of performing both annual external visual inspections and internal visual inspections at least once every 10 years. See Item 2 below.	Y ☐	N ☐
	(b)	For each annual external visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all storage vessels for which failures were detected, (3) a description of those failures, and (4) either the date and the nature of the repair or the date the vessel was emptied.	Y ☐	N ☐
	(c)	If the report described in (a) and (b) documents that the repair was made more than 45 days after the failure was detected, then the next PR includes documentation of the use of up to two 30-day extensions for completing the repair and the following information: identification of the storage vessel, a description of the failure, documentation that alternate storage capacity was unavailable, a schedule of actions to be taken to repair the control equipment or empty the vessel as soon as possible, and the date the storage vessel was emptied and the nature of and date the repair was made.	Y ☐	N ☐
2.	Review records of internal visual inspections.			
	(a)	The occurrence of each internal visual inspection is recorded. If the floating roof is equipped with double seals and the source chose not to perform annual external inspections [described in Item 1(b)], this inspection will be performed, recorded, and reported at least every 5 years.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

(b)	For each internal visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all storage vessels for which failures were detected, (3) a description of those failures, and (4) the date and nature of the repair.	Y ☐	N ☐
(c)	Any repairs performed as described in (b) were completed before the repaired storage vessel was refilled.	Y ☐	N ☐
(d)	For each internal visual inspection documented in a PR, there is a report notifying the Administrator in advance of the date the inspected vessel would be refilled after the inspection. If the inspection had been planned, the report was submitted 30 days in advance of refilling the vessel. If the inspection was not planned, then the report was submitted at least 7 days in advance of refilling the vessel and included an explanation of why the inspection was unplanned.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A CLOSED VENT SYSTEM AND CONTROL DEVICE

1. If the control device is a flare, review the following records.

(a)	The results of the initial compliance determination were submitted in the NCS.[c]	Y ☐	N ☐
(b)	All periods when the flare does not meet the general control device requirements specified in §63.11(b) of Subpart A are recorded and reported in the PR.	Y ☐	N ☐
(c)	Each record and report described in (b) includes an identification of the flare not meeting the general control device requirements and the reason the flare did not meet the general control device requirements.	Y ☐	N ☐
(d)	The total number of hours of routine maintenance of the flare during which the flare does not meet the general control device requirements specified in §63.11(b) of Subpart A is recorded and reported in the PR.	Y ☐	N ☐

(continued)

2.	If the control device is not a flare, review the following records.			
	(a) A design evaluation of the control device and a description of the gas stream entering the control device are recorded and reported in the IP.[d,e,f]			
		(1) If the control device is a thermal incinerator, the design evaluation includes the autoignition temperature of the organic HAP emission stream, the combustion temperature, and the residence time at the combustion temperature.[e]	Y ☐	N ☐
		(2) If the control device is a carbon adsorber, the design evaluation includes the affinity of the organic HAP vapors for carbon, the amount of carbon in each bed, the number of beds, the humidity of the feed gases, the temperature of the feed gases, the flow rate of the organic HAP emission stream, the desorption schedule, the regeneration stream pressure or temperature, and the flow rate of the regeneration stream. For vacuum desorption, pressure drop is included.	Y ☐	N ☐
		(3) If the control device is a condenser, the design evaluation includes the final temperature of the organic HAP vapors, the type of condenser, and the design flow rate of the organic HAP emission stream.	Y ☐	N ☐
	(b) The documentation described in (a) demonstrates that the control device achieves 95-percent control efficiency during reasonably expected maximum loading conditions (or 90-percent efficiency if the control device was installed prior to December 31, 1992).		Y ☐	N ☐
	(c) Recorded and reported in the IP are: (1) a description of the parameter (or parameters) to be monitored to ensure that the control device is operated and maintained in conformance with its design, (2) an explanation of the criteria used for selection of the parameter (or parameters), and (3) the frequency with which monitoring will be performed.		Y ☐	N ☐
	(d) For each monitoring parameter identified in the IP, the operating range is recorded and reported in the NCS.		Y ☐	N ☐

(continued)

	(e)	Records of the monitored parameter (or parameters), as described in (c) and (d), are kept at the required frequency.	Y ☐	N ☐
	(f)	Each occurrence when the monitored parameter (or parameters) was outside its parameter range (documented in the NCS) is recorded and reported in the PR.	Y ☐	N ☐
	(g)	Each record and report described in (f) includes an explanation of why the measured parameter (or parameters) was outside of its established range.	Y ☐	N ☐
	(h)	The total number of hours of routine maintenance of the control device during which the control device does not achieve a 95-percent control efficiency (or 90-percent control efficiency if the control device was installed prior to December 31, 1992) is recorded and reported in the PR.	Y ☐	N ☐
3.	For all control devices, review the following records.			
	(a)	A description of the routine maintenance planned for the next 6 months and actually performed in the previous 6 months is recorded and reported in the PR.	Y ☐	N ☐
		Note: Items (b) through (f) do not apply to vapor-collection systems that are operated and maintained under negative pressure.		
	(b)	Records are kept of all parts of any vapor-collection system that are designated as either unsafe-to-inspect or difficult-to-inspect, with an explanation of the designation.	Y ☐	N ☐
	(c)	For equipment that is designated as difficult to inspect, a written plan is kept that requires inspection of equipment at least once every five years.	Y ☐	N ☐
	(d)	For equipment that is designated as unsafe to inspect, a written plan is kept that requires inspection of equipment as frequently as practicable.	Y ☐	N ☐
	(e)	For each inspection during which a leak was detected, the following information is recorded and reported.		
		(1) Instrument identification numbers, operator name or initials, and equipment identification information;	Y ☐	N ☐

(continued)

	(2)	The date the leak was detected and the date of the first attempt to repair it;	Y ☐	N ☐
	(3)	Maximum instrument reading after the leak is repaired or determined to be non-repairable;	Y ☐	N ☐
	(4)	Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered;	Y ☐	N ☐
	(5)	Name or initials of person who decides repairs cannot be made without a shutdown;	Y ☐	N ☐
	(6)	Expected date of successful repair if not repaired within 15 days;	Y ☐	N ☐
	(7)	Dates of shutdowns that occur while the equipment is unrepaired; and	Y ☐	N ☐
	(8)	Date of successful repair of the leak.	Y ☐	N ☐
(f)	For each inspection during which no leaks were detected, the following records are kept:			
	(1)	Record that the inspection was performed;	Y ☐	N ☐
	(2)	Date of the inspection; and	Y ☐	N ☐
	(3)	Statement that no leaks were found.	Y ☐	N ☐
(g)	Hourly records are kept of whether the flow indicator in the bypass line was operating and whether flow was detected at any time during the hour, when seal mechanisms are not used <u>and</u>		Y ☐	N ☐
(h)	The time and duration of all periods when flow is diverted or the monitor is not operating are reported in the PR when seal mechanisms are not used [or (i) and (j)].		Y ☐	N ☐
(i)	Records of monthly visual inspections are kept when seal mechanisms are used <u>and</u>		Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

		Y	N
(j)	All periods when the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out are recorded and reported in the PR when seal mechanisms are used.	Y ☐	N ☐

Note: In order to be in compliance with provisions for bypass lines either: items (g) and (h) must both be checked "Yes" or both items (i) and (j) must be checked "Yes".

VISUAL INSPECTION

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF

Note: The inspector should not perform the inspection while on the EFR if the roof is below four feet of the top of the tank and if the inspector is not equipped with the proper respiratory protection. Based on the inspector's assessment of the availability of records documenting the design of the control equipment, an adequate inspection without respiratory protection may be performed with a combination of a record inspection and a visual inspection conducted from the platform with the aid of vision-enhancing devices (binoculars).

			Y	N
1.	The EFR is resting on the liquid surface of the stored material, unless the EFR is resting on the roof leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.		Y ☐	N ☐
2.	The external floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).		Y ☐	N ☐
3.	There is a secondary seal installed above the primary seal.[h]		Y ☐	N ☐
4.	Inspect the secondary seal.[h]			
	(a)	The secondary seal is continuous and completely covers the annular space between the EFR and the vessel wall.	Y ☐	N ☐
	(b)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(c)	There are no visible gaps between the seal and the wall of the storage vessel, except as specified in (e)(1) and (e)(2).	Y ☐	N ☐
	(d)	The seal is not detached from the floating deck.	Y ☐	N ☐

(continued)

	(e)	Perform seal gap measurement of the secondary seal as specified in §63.120(b)(1) through (b)(4) of the HON storage provisions.		
		(1) The accumulated area of gaps between the vessel wall and the secondary seal does not exceed 21.2 cm^2 per meter of vessel diameter.	Y ☐	N ☐
		(2) The maximum gap width between the vessel wall and the seal does not exceed 1.27 cm.	Y ☐	N ☐
5.	Inspect the primary seal.[h]			
	(a)	The primary seal is either a metallic shoe seal or a liquid-mounted seal.[h]	Y ☐	N ☐
	(b)	The primary seal forms a continuous closure that completely covers the annular space between the wall of the storage vessel and the edge of the EFR, except as described in (f)(1) and (f)(2).	Y ☐	N ☐
	(c)	There are no holes, tears, or other openings in the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used).	Y ☐	N ☐
	(d)	If the primary seal is a metallic shoe seal:		
		(1) The lower end of the metallic shoe send extends into the stored liquid (no specific distance);	Y ☐	N ☐
		(2) The upper end of the metallic shoe seal extends a minimum vertical distance of 61 cm above the stored liquid surface; and	Y ☐	N ☐
		(3) There is a flexible coated fabric that spans the space between the metal shoe and the vessel wall.	Y ☐	N ☐
	(e)	If the primary seal is a liquid-mounted seal, the seal is in contact with the liquid between the wall of the storage vessel and the EFR.	Y ☐	N ☐
	(f)	Perform seal gap measurements of the primary seal as specified in §63.120(b)(1) through (b)(4) of the HON storage provisions.		
		(1) The accumulated area of gaps between the vessel wall and the primary seal does not exceed 212 cm^2 per meter of vessel diameter.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

	(2)	The maximum gap width between the vessel wall and the seal does not exceed 3.81 cm.	Y ☐	N ☐
6.	Inspect deck openings.			
	(a)	If the EFR is non-contact, then each opening in the floating roof, except automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[i]	Y ☐	N ☐
	(b)	Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is equipped with a gasketed cover, seal, or lid which forms a vapor-tight seal.	Y ☐	N ☐
	(c)	Each gasketed cover, seal, or lid on any opening in the EFR is closed, unless the cover or lid must be open for access.	Y ☐	N ☐
	(d)	Covers on each access hatch and gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(e)	The gasket on each cover, seal, or lid described in (b) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
7.	Inspect automatic bleeder vents.			
	(a)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(b)	Automatic bleeder vents are gasketed.	Y ☐	N ☐
	(c)	The gasket on the automatic bleeder vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
8.	Inspect rim space vents.			
	(a)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(b)	Rim space vents are gasketed.	Y ☐	N ☐
	(c)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
9.	Each roof drain is covered with a slotted membrane fabric that covers at least 90 percent of the area of the opening.		Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

10.	Each unslotted guide pole well has either a gasketed sliding cover or a flexible fabric sleeve seal.	Y ☐	N ☐
11.	Each unslotted guide pole shall have on the end of the pole a gasketed cap which is closed at all times except when gauging the liquid level or taking liquid samples.	Y ☐	N ☐
12.	Each slotted guide pole well is equipped with the following equipment: (1) a gasketed sliding cover or a flexible fabric sleeve seal, and (2) a gasketed float inside the guide pole or other control device which closes off the liquid surface from the atmosphere.	Y ☐	N ☐
13.	Each gauge hatch/sample well has a gasketed cover which is closed (except when the hatch or well must be open for access).	Y ☐	N ☐
14.	All of the gaskets described in 10 through 13 close off the liquid surface from the atmosphere.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS AN INTERNAL FLOATING ROOF

Note: The inspector should be advised of the hazards of inspecting an internal floating roof vessel that contains a liquid hazardous air pollutant (HAP). An inspector may perform an external visual inspection of a storage vessel at any time (i.e., the vessel does not need to be taken out of service). However, the inspector will need to have proper respiratory protection before opening the roof hatch to visually inspect, from the fixed roof, the floating deck and seal. An inspector may perform the more thorough internal inspection only when the vessel has been taken out of service (i.e., emptied, degassed and cleaned). Unless a vessel is taken out of service more frequently than is required by the HON, this internal inspection can only take place once every ten years, during those 30 days after which the State Agency has received notice that the vessel has been emptied and degassed and will subsequently be refilled. The inspector should never enter a storage vessel to inspect the IFR without first consulting documents that address the safety issues to consider while entering a confined space and while inspecting an IFR that contains HAP (e.g., the EPA document "Confined Space Safety Document for Conducting NESHAP Compliance Inspections of Benzene Storage Tanks.")

1. External Visual Inspection

(a)	The IFR is resting on the liquid surface of the stored material, unless the IFR is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)	The IFR is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐

(continued)

(c)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).			
	(1)	The seal is not detached from the IFR.	Y ☐	N ☐
	(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(3)	There are no visible gaps between the seal and the wall of the storage vessel.	Y ☐	N ☐
2.	Internal Visual Inspection			
(a)	The IFR is resting on the liquid surface of the stored material, unless the IFR is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.		Y ☐	N ☐
(b)	The IFR is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).		Y ☐	N ☐
(c)	The IFR is equipped with one of the following closure devices, between the wall of the storage vessel and the edge of the IFR: (1) a liquid-mounted seal, (2) a metallic shoe seal, or (3) two seals (i.e., a primary and secondary seal), each of which forms a continuous closure that completely covers the annular space between the wall of the storage vessel and the edge of the IFR.[j]		Y ☐	N ☐
(d)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).			
	(1)	The seal is not detached from the IFR.	Y ☐	N ☐
	(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(3)	There are no visible gaps between the seal and the wall of the storage vessel.	Y ☐	N ☐
(e)	Inspect deck openings.			
	(1)	If the IFR is non-contact, then each opening in the floating roof, except for automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[i]	Y ☐	N ☐

(continued)

	(2)	Except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains, each opening in the IFR is equipped with a gasketed cover or lid.[k]	Y ☐	N ☐
	(3)	Each cover or lid on any opening in the IFR is closed, unless the cover or lid is open for access.	Y ☐	N ☐
	(4)	Covers on each access hatch and automatic gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(5)	The gasket on each cover or lid described in (3) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(f)	Inspect automatic bleeder vents.			
	(1)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(2)	Each automatic bleeder vent is gasketed.[k]	Y ☐	N ☐
	(3)	The gasket on each automatic bleeder vent closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(g)	Inspect rim space vents.			
	(1)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(2)	Rim space vents are gasketed.[k]	Y ☐	N ☐
	(3)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
(h)	Each, sample well (i.e., each penetration of the IFR for the purpose of sampling), has a slit fabric cover that covers at least 90 percent of the opening.[k]		Y ☐	N ☐
(i)	Each penetration of the IFR that allows for passage of a ladder has a gasketed sliding cover.[k]		Y ☐	N ☐
(j)	Each penetration of the IFR that allows for passage of a column supporting the fixed roof has either a flexible fabric sleeve seal or a gasketed sliding cover.[k]		Y ☐	N ☐

(continued)

(k)	The gaskets described in (i) and (j) close off the liquid surface to the atmosphere.	Y ☐	N ☐
(l)	If a flexible fabric sleeve seal is used as described in (j), the fabric sleeve is free of defects (i.e., free of holes, tears, or gaps).	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF VESSEL

Note: The inspector should be advised of the hazards of inspecting an external floating roof vessel converted to an internal floating roof vessel that contains a liquid hazardous air pollutant (HAP). An inspector may perform an external visual inspection of a storage vessel at any time (i.e., the vessel does not need to be taken out of service). However, the inspector will need to have proper respiratory protection before opening the roof hatch to visually inspect, from the fixed roof, the floating deck and seal. An inspector may perform the more thorough internal inspection only when the vessel has been taken out of service (i.e., emptied, degassed and cleaned). Unless a vessel is taken out of service more frequently than is required by the HON, this internal inspection can only take place once every ten years, during those 30 days after which the State Agency has received notice that the vessel has been emptied and degassed and will subsequently be refilled. The inspector should never enter a storage vessel to inspect the floating roof without first consulting documents that address the safety issues to consider while entering a confined space and while inspecting an external floating roof vessel converted to an internal floating roof vessel that contains HAP (e.g., the EPA document "Confined Space Safety Document for Conducting NESHAP Compliance Inspections of Benzene Storage Tanks.")

1. External Visual Inspection

(a)	The floating roof is resting on the liquid surface of the stored material, unless the floating roof is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)	The floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
(c)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).		
	(1) The seal is not detached from the floating roof.	Y ☐	N ☐
	(2) There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐

(continued)

	(3)	There are no visible gaps between the seal and the wall of the storage vessel.	Y ☐	N ☐
2.	Internal Visual Inspection			
(a)		The floating deck is resting on the liquid surface of the stored material, unless the floating deck is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)		The floating deck is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
(c)		The floating deck is equipped with one of the following closure devices, between the wall of the storage vessel and the edge of the floating deck: (1) a liquid-mounted seal, (2) a metallic shoe seal, or (3) two seals (i.e., a primary and secondary seal), each of which forms a continuous closure that completely covers the annular space between the wall of the storage vessel and the edge of the floating deck.[j]	Y ☐	N ☐
(d)		Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).		
	(1)	The seal is not detached from the floating deck.	Y ☐	N ☐
	(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(3)	There are no visible gaps between the seal and the wall of the storage vessel.	Y ☐	N ☐
(e)		Inspect deck openings		
	(1)	If the floating deck is non-contact, then each opening in the floating roof, except automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[i]	Y ☐	N ☐
	(2)	Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is equipped with a gasketed cover, seal, or lid which forms a vapor-tight seal.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

	(3)	Each gasketed cover, seal, or lid on any opening in the floating deck is closed, unless the cover or lid must be open for access.	Y ☐	N ☐
	(4)	Covers on each access hatch and gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(5)	The gasket on each cover, seal, or lid described in (2) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(f)	Inspect automatic bleeder vents			
	(1)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(2)	Automatic bleeder vents are gasketed.	Y ☐	N ☐
	(3)	The gaskets on the automatic bleeder vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
(g)	Inspect rim space vents			
	(1)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(2)	Rim space vents are gasketed.	Y ☐	N ☐
	(3)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
(h)	Each roof drain is covered with a slotted membrane fabric that covers at least 90 percent of the area of the opening.		Y ☐	N ☐
(i)	Each unslotted guide pole well has either a gasketed sliding cover or a flexible fabric sleeve seal.		Y ☐	N ☐
(j)	Each unslotted guide pole shall have on the end of the pole a gasketed cap which is closed at all times except when gauging the liquid level or taking liquid samples.		Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

(k)	Each slotted guide pole well is equipped with the following equipment: (1) a gasketed sliding cover or a flexible fabric sleeve seal, and (2) a gasketed float inside the guide pole or other control device which closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(l)	Each gauge hatch/sample well has a gasketed cover which is closed (except when the hatch or well must be open for access).	Y ☐	N ☐
(m)	All of the gaskets described in (i), (j), (k), and (l) close off the liquid surface from the atmosphere.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A CLOSED VENT SYSTEM (I.E., VAPOR COLLECTION SYSTEM) AND CONTROL DEVICE.

1.	There are no visible gaps, holes, or corrosion spots seen in the ductwork of the vapor collection system.	Y ☐	N ☐
2.	If the control device is a flare, a device for detecting the flame is present.	Y ☐	N ☐
3.	If the control device is not a flare, a device to monitor the parameter (or parameters) specified in the IP is present.	Y ☐	N ☐
4.	A flow indicator is present at the entrance to any bypass line that could divert the vent stream flow away from the control device to the atmosphere or all bypass line valves are sealed in a closed position (e.g., with a car seal or lock-and-key configuration).	Y ☐	N ☐

[a] If an external floating roof has a liquid-mounted or metallic shoe primary seal as of December 31, 1992, a secondary seal is not required until the next emptying and degassing or April 22, 2004, whichever is later. For such storage vessels, measurement of gaps in the primary seal must be conducted once per year until a secondary seal is installed.

[b] PR = Periodic Report

[c] NCS = Notification of Compliance Status

[d] IP = Implementation Plan

[e] If an enclosed combustion device is documented to have a minimum residence time of 0.5 seconds and a minimum temperature of 760°C, then additional documentation is not required.

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

f If the control device used to comply with the storage vessel provisions is also used to comply with the process vent, transfer, or wastewater provisions, the performance test required by those provisions is an acceptable substitute for the design evaluation for determining compliance.

g A "vapor collection system" is equivalent to a "closed vent system."

h If the external floating roof is equipped, as of December 31, 1992, with either: (1) a liquid-mounted primary seal and no secondary seal, (2) a metallic shoe primary seal and no secondary seal, or (3) a vapor mounted primary seal and a secondary seal, then the seal requirement of a liquid-mounted or metallic shoe primary seal and secondary seal does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) April 22, 2004.

i If these openings (excluding automatic bleeder vents and rim space vents) did not provide projections below the liquid service as of December 31, 1992, this requirement 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 April 22, 2004.

j If the internal floating roof is equipped, as of December 31, 1992, with a single vapor-mounted seal, then the requirement for a liquid-mounted seal or metallic shoe seal or two seals does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) April 22, 2004.

k If the internal floating roof did not meet these specifications as of December 15, 1992, 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 April 22, 2004.

NOTE ALL DEFICIENCIES.

SECTION 8.
WASTEWATER

The HON regulates wastewater streams that are generated when HAP's listed on Table 9 of Subpart G of the HON exit chemical manufacturing process unit equipment. Water that contacts HAP's may be categorized as process wastewater, maintenance wastewater, or cooling water. Process wastewater constitutes the majority of wastewater generated at a SOCMI facility, while maintenance wastewater is generated periodically. Cooling water is not categorized as wastewater.

Examples of process wastewater include, but are not limited to, water used to wash impurities from organic products or reactants, water used to cool or quench organic vapor streams through direct contact, condensed steam from jet ejector systems pulling vacuum on vessels containing organics, product and feed tank drawdown. Maintenance wastewater streams include, but are not limited to, those generated by descaling heat exchanger tubing bundles, cleaning distillation column traps, draining of pumps into an individual drain system, and wastewater generated during equipment washes and spill cleanups. Cooling water is water that has been contaminated with organic HAP's by leaking heat exchange systems.

This section focuses on emissions from and control of process wastewater, and residuals removed from process wastewater. The requirements for maintenance wastewater and cooling water will be addressed in the checklists.

8.1 DESCRIPTION OF EMISSION POINT

Process wastewater typically passes through a series of collection units and primary and secondary treatment units before being discharged from a facility. As defined in the HON, the wastewater emission point at a SOCMI source comprises numerous pieces of equipment such as wastewater tanks, surface impoundments, containers, individual drain systems, oil-water separators, treatment systems, closed-vent systems, and control devices. Each of these collection and treatment units must be inspected to ensure compliance with the HON.

Collection and treatment scenarios for process wastewater are facility-specific. The flow rate and organic composition of process wastewater streams at a particular facility are functions of the processes used and influence the sizes and types of collection and treatment units that must be employed. Table 8-1 lists common components of wastewater collection and treatment systems at SOCMI facilities. The following sections briefly discuss each of these emission components. A detailed discussion of wastewater collection and treatment systems, including diagrams, typical design parameters, emission mechanisms, and factors affecting emissions, is contained in the Control

TABLE 8-1. COMMON COMPONENTS OF WASTEWATER COLLECTION SYSTEMS AND TREATMENT PROCESSES

Waste Management Units and Treatment Processes:

- Biological treatment basins
- Clarifiers
- Containers
- Drains
- Equalization basins or neutralization basins
- Junction boxes
- Lift stations
- Manholes
- Oil-water separators
- Steam strippers
- Sumps
- Surface impoundments
- Treatment tanks
- Trenches
- Weirs

Technology Center (CTC) document.[1] In addition, emission estimation models and example calculations for VOC emissions are presented in Appendices A and B of the same document.

8.1.1 Individual Drain Systems

Wastewater streams from various equipment throughout a given process are introduced into the collection system through process drains. Individual drains usually connect directly to the main process sewer line, but may also drain to trenches, sumps, or ditches. Some drains are dedicated to a single piece of equipment, while others, known as area drains, serve several units. In the HON, "individual drain system" is defined as the system used to convey wastewater streams from a process unit, product storage tank, feed storage tank, or waste management unit to a waste management unit. The term includes all process drains, junction boxes, together with their associated sewer lines and other junction boxes, manholes, sumps, and lift stations, down to the receiving waste management unit. A segregated stormwater sewer system, which is a drain and collection system designed and operated for the sole purpose of collecting rainfall-runoff at the facility and which is segregated from all other individual drain systems, is excluded from the definition.

8.1.2 Manholes

Manholes are service entrances into process sewer lines that permit inspection and cleaning of the sewer line. They are placed at periodic lengths along the sewer line or where sewers intersect or change significantly in direction, grade, or line diameter. A typical manhole opening is about 2 ft in diameter and is covered with a heavy cast-iron plate that contains two to four holes so that the manhole cover can be more easily grasped for removal.

8.1.3 Trenches

Trenches are used to transport wastewater from the point of process equipment discharge to wastewater collection units. In older plants, trenches may be the primary mode of wastewater transportation in the collection system. Trenches are often interconnected throughout the process area and handle equipment pad water runoff, water from equipment wash down and spill cleanups, and process wastewater discharges. Trench length is determined by the locations of the process equipment and the downstream collection system units, and typically ranges from 50 to 500 ft. Depth and width are dictated by the flow rate of the wastewater discharged from process equipment and must be sufficient to accommodate emergency wastewater flows from the process equipment. Trenches are typically open or covered with grates.

8.1.4 Sumps

Sumps are used to collect and equalize wastewater flow from trenches before treatment. They are usually quiescent and open to the atmosphere. Sumps are sized based on the total flow rate of the incoming wastewater stream.

8.1.5 Junction Boxes

A junction box combines multiple wastewater streams into one stream which flows downstream. Generally, the flow rate from the junction box is controlled by the liquid level in the junction box. Junction boxes are either square or rectangular and are sized based on the total flow rate of the entering streams. Junction boxes are typically open, but may be closed (for safety) and vented to the atmosphere.

8.1.6 Lift Stations

A lift station is normally the last collection unit before the treatment system and accepts wastewater from one or several sewer lines. The main function of the lift station is to collect wastewater for transport to the treatment system. A pump provides the necessary head pressure for transport and is usually designed to switch on and off based on preset high and low liquid levels. Lift stations are typically rectangular in shape and greater in depth than length or width and are either open or closed and vented to the atmosphere.

8.1.7 Weirs

Weirs act as dams in open channels. The weir face is usually aligned perpendicular to the bed and the walls of the channel. Water from the channel normally overflows the weir but may pass through a notch, or opening, in the weir face. Because of this configuration, weirs provide some control over the level and flow rate through the channel. Weirs may also be used for wastewater flow rate measurement. Water overflowing the weir may proceed down steps, which aerates the wastewater. This increases diffusion of oxygen into the water, which may benefit the biodegradation process (often the next treatment step). However, this increased contact with air also accelerates the volatilization of organic compounds contained in the wastewater.

8.1.8 Oil-Water Separators

Oil-water separation is often the first step in wastewater treatment, but oil-water separators may also be found in the process area. These units separate and remove 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. 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.

8.1.9 Equalization Basins

Equalization basins are used to reduce fluctuations in the temperature, flow rate, pH, and organic compound concentrations of the wastewater going to the downstream treatment processes. The equalization of the wastewater flow rate results in more uniform effluent quality from downstream units and can also benefit biological treatment performance by damping any influent concentration and flow rate fluctuations. This damping protects biological processes from upset or failure caused by shock loadings of toxic or treatment-inhibiting compounds. Equalization basins normally use hydraulic retention time to ensure equalization of the wastewater effluent leaving the basin. However, some basins are equipped with mixers or surface aerators to enhance the equalization, accelerate wastewater cooling, or saturate the wastewater with oxygen before secondary treatment.

8.1.10 Treatment Tanks

Several different types of treatment tanks may be used in wastewater treatment systems. Tanks designed for pH adjustment are typically used preceding the biological treatment step. In these tanks, the wastewater pH is adjusted using acidic or alkaline additives to prevent shocking the biological system downstream. Flocculation tanks, on the other hand, are usually used to treat wastewater after biological treatment. Flocculating agents are added to the wastewater to promote the formation or agglomeration of larger particle masses from the fine solids formed during biological treatment. These larger particles precipitate more readily out of the wastewater in the clarifier, which usually follows flocculation in the treatment system.

8.1.11 Biological Treatment Basins

Biological waste treatment is normally accomplished using aeration basins. Microorganisms require oxygen to carry out the biodegradation of organic compounds, which results in energy and biomass production. The aerobic environment in the basin is normally achieved with diffused or mechanical aeration. This aeration also maintains the biomass in a well-mixed regime. The performance of aeration basins is particularly affected by (1) mass of organics per unit area of wastewater, (2) temperature and wind patterns, (3) hydraulic retention time, (4) dispersion and mixing characteristics, (5) characteristics of the solids in the influent, and (6) amount of essential microbial nutrients present.

8.1.12 Clarifiers

The primary purpose of a clarifier is to separate solids from wastewater through gravitational settling. Most clarifiers are equipped with surface skimmers to clear the water of floating oil deposits, grease, and scum. Clarifiers also have sludge-raking arms that remove the accumulation of organic solids that collects at the bottom of the tank. The depth and cross-sectional area of a clarifier are functions of the settling rate of the suspended solids and the thickening characteristics of the sludge. Clarifiers are designed to provide sufficient retention time for the settling and thickening of these solids.

8.1.13 Surface Impoundments

Surface impoundments are used for evaporation, polishing, storage before further treatment or disposal, equalization, leachate collection, and as emergency surge basins. They may be quiescent or mechanically agitated.

8.1.14 Containers

Containers which are compatible with the material(s) held may be used to collect residuals generated by treatment prior to offsite shipment and for other purposes that require mobility. Containers may vary in size and shape ranging from a 55-gallon drum to a tanker truck.

8.2 DESCRIPTION OF EMISSION CONTROL TECHNOLOGIES

The technologies used to reduce emissions from SOCMI wastewater systems involve a combination of control equipment and good work practices. This section describes applicable emission control technologies for collection and waste management units, treatment processes, and closed-vent systems and control devices. For each of the control technologies discussed in this section, the design and operation of the control device or system is described including an explanation of the physical and/or chemical processes that destroy the organic HAP's or remove them from the wastewater stream. Additionally, the factors affecting the efficiency of the control device, such as operating parameters, are provided. Several emission control technologies including combustion technologies (e.g., flares, incinerators), fixed and floating roofs, and product recovery devices (e.g., condensers, adsorbers) that can be used to control emissions from wastewater are also applicable to process vents, storage vessels, and/or transfer operations. In such cases, this section discusses the applicability of the control technology to emissions from wastewater and refers to the respective sections in this document for details.

8.2.1 Waste Management Units

As described in Section 8.1, wastewater collection systems and waste management units include wastewater tanks, surface impoundments, containers, individual drain systems (which include process drains, junction boxes, manholes, etc.), and oil-water separators. Emissions from wastewater collection system components must be controlled through the use of emission suppression technologies. Suppression technologies reduce volatilization of HAP's and prevent the release of volatile HAP's to the ambient air. This allows the treatment process(es) following the collection system to achieve greater removal and/or destruction of HAP's. The following sections describe the suppression techniques suitable for the different components in a wastewater collection system.

8.2.1.1 Controls for Process Drains

Water seal controls reduce emissions by limiting the effects of convection and diffusion on VOC's in the wastewater. Water seals can be either P-legs or seal pots. P-leg sealed drains are similar to open drains, which are usually 4 to 6 inches in diameter and extend vertically to a height of 4 to 6 inches above grade, except that a "P" bend in the pipe is found below grade. The P-bend provides a liquid seal for the individual drain, similar to that found in household plumbing. A seal pot drain has a cap covering the drain opening, and the bottom edge of the cap extends below the level of the drain entrance. Liquid from the various drain pipes falls into the drain area outside of the cap and then flows under the edge of the cap into the drain line. The drain cap can easily be removed to clean the drain entrance and drain line.

Water seals will result in emission control only if the liquid levels in the water seals are properly maintained, thereby minimizing mass transfer from the wastewater to the ambient air. Therefore, the control equipment must be coupled with work practices to ensure maximum effectiveness.

A second method for controlling VOC emissions from process drains is to use a closed drain system. In closed drain systems, emission control is achieved by mechanical and/or physical barriers inherent to the drain design and are not dependent on operating procedures (e.g., maintaining an appropriate level of water). Typically, a drain riser extends approximately 12 to 18 inches above grade. The top of the riser is completely sealed with a flange. Drain pipes are welded directly to the riser. This line is normally closed with a valve, but provides access to the closed drain system for intermittent and infrequent needs such as pump drainage. Hoses or flexible lines can be connected to the riser valve from the liquid source. The emission control achieved by a closed system can be as high as 95 percent, depending on the maintenance of the system. Diagrams illustrating water seals and closed drain systems are located in the Regulatory and Inspection Manual for Petroleum Refinery Wastewater Systems.[2]

8.2.1.2 Controls for Junction Boxes, Manholes, Trenches, Weirs, Sumps, and Lift Stations

Control of emissions from individual drain system components is based on an equipment standard supported by appropriate work practices. For example, the most feasible method of reducing emissions from a junction box is by installing a tightly sealed cover. The cover reduces the exposure of the wastewater to the atmosphere, thereby minimizing the effects of diffusion and convection on the HAP's present in the wastewater stream. The cover may be vented to reduce the buildup of pressure and/or explosive concentrations of gases. In such cases, the vent could be routed to a recovery or combustion control device to prevent the volatilized HAP's from being released to the atmosphere. Emission suppression may also be achieved through the use of other totally enclosed equipment such as hard-piping in place of open trenches.

8.2.1.3 Controls for Wastewater Tanks and Oil-Water Separators

Emissions from wastewater tanks and oil-water separators can be reduced by installing either a floating roof over the liquid surface of the separator or tank, or a fixed roof vented to a control device. The roof reduces the effects of evaporation, wind speed, and solar radiation.

Fixed roofs can be constructed of various materials and can be mounted on the sides of the tank or separator or supported by horizontal beams set in the sides of the tank or separator. The space between the roof and the edge of the tank or separator, and the spaces around any access doors, can be sealed with gaskets to prevent the release of any HAP's that volatilize from the wastewater. The vent from the tank would be routed to a recovery or combustion control device.

Floating roofs actually float on the liquid surface, thereby minimizing the vapor space above the wastewater. Floating roofs can be constructed of various materials including plastic, glass foam blocks, aluminum pontoons, or fiberglass. Seals are placed between the roof and the wall of the separator to minimize VOC emissions. A primary seal consists of a foam or liquid-filled seal mounted, in contact with the liquid, between the floating roof and the wall of the separator. Emission reductions from floating roofs can be greater than 95 percent for tanks and oil-water separators holding wastewater. The effectiveness of the roofs in reducing emissions depends on a variety of factors -- the most important being maintenance of the seals around the roofs, doors, and other openings. The HON includes work practices to ensure optimal performance of the control technology. Section 7.2 of this document provides additional details on both fixed and floating roofs.

8.2.1.4 <u>Containers</u>

The technologies used for controlling emissions from containers include the use of covers, submerged-fill pipes, and enclosures. When wastewater or residuals from wastewater treatment are added to a container, use of a submerged-fill pipe minimizes the loss of HAP's during filling. As discussed in Section 6.1 of this manual, in submerged loading the fill pipe is below the liquid level, thus reducing the amount of turbulence and resulting in lower vapor generation. Covers reduce losses due to evaporation and wind. Any container that must be opened can be placed in an enclosure that is vented to a closed-vent system and control device. The conveyance of the gases to a control device reduces the potential for buildup of pressure and/or explosive concentrations of gases in the enclosure. To be subject to the HON, a container must have a capacity greater than or equal to 0.1 m^3.

8.2.2 <u>Treatment Processes</u>

For wastewater, the primary treatment processes are steam stripping and biological treatment. This section provides a detailed discussion of each.

8.2.2.1 <u>Steam Stripping</u>

Steam stripping involves the fractional distillation of wastewater to remove HAP's. As the wastewater flows down the column, it contacts the steam flowing countercurrently up the column. Organic compounds are vaporized through heat transfer from the steam. As the organics vaporize in the column, they are transferred from the liquid phase into the gas phase. The vaporized organic constituents flow out the top of the column with any uncondensed steam and undergo a phase change to a liquid in the overhead condenser. From the condenser, the liquid is sent to a decanter where the organic compounds separate from the condensed steam due to differences in density (e.g., the organic layer may float on top of the aqueous phase). The organic layer is usually either recycled and reused in the process or incinerated in an on-site combustion device for heat recovery.[3]

The wastewater effluent leaving the bottom of the steam stripper is usually either routed to an on-site wastewater treatment plant and discharged to a National Pollutant Discharge Elimination System (NPDES)-permitted outfall, or sent to a publicly-owned treatment works (POTW).

Steam stripper systems may be operated in batch or continuous mode. Batch steam strippers are more prevalent when the wastewater feed is generated by batch processes, when the characteristics of the feed are highly variable, or when small volumes of wastewater are generated. Batch strippers may also be used if the wastewater contains relatively high concentrations of solids, resins, or tars.

In contrast to batch strippers, continuous steam strippers are designed to treat wastewater streams with relatively consistent characteristics. Design of the continuous stripper system is based on the flow rate and composition of a specific wastewater feed stream or combination of streams. Multi-stage, continuous strippers normally achieve greater efficiencies of organic compound removal than batch strippers.

Wastewater streams continuously discharged from process equipment are usually relatively consistent in composition. Such wastewater streams would be efficiently treated with a continuous steam stripper system. However, batch wastewater streams can also be controlled by continuous steam strippers by incorporating a feed tank with adequate residence time to provide a consistent outlet composition. In such cases, the feed tank serves as a buffer between the batch process and the continuous steam stripper. During periods of no wastewater flow from the batch process, wastewater stored in the feed tank is fed to the stripper at a relatively constant rate.

Steam stripping achieves emission reductions of 0 to 99 percent, based on the chemical characteristics (e.g., strippability) of the wastewater stream. However, 95 to 99 percent reduction can be achieved for the majority of organic compounds regulated by the HON. The organic compound removal performance of the steam stripper depends on the degree of contact between the steam and the wastewater. Several factors affecting the degree of contact that occurs in the steam stripper column are: (1) the dimensions of the column (height and diameter); (2) the contacting media in the column (trays or packing); and (3) operating parameters such as the steam-to-feed ratio, column temperatures, and pH of the wastewater.

Steam stripping is most applicable to treating wastewaters with organic compounds that are highly volatile and have a low solubility in water. Oil, grease, and solids content and the pH of a wastewater stream also affect the feasibility of steam stripping. High levels of oil, grease, and solids can cause fouling of the stripper system. High or low pH may prove to be corrosive to equipment.

However, these problems can usually be circumvented by design or wastewater preconditioning techniques. Section 2.2.3 of "Hazardous Air Pollutant Emissions from Process Units in the SOCMI -- Background Information for Proposed Standards, Volume 1B: Control Technologies" provides additional details on steam stripping.[4]

8.2.2.2 Biological Treatment

The use of biological treatment systems as a control technology is an effective method for the removal of numerous HAP's through microbial degradation. Such systems involve the use of bacteria, algae, fungi, and microorganisms to stabilize, absorb, alter, or destroy organic compounds. The most common form of biological treatment is aerobic (i.e., in the presence of oxygen). In the presence of excess oxygen, organic chemicals are oxidized by bacteria to carbon dioxide and water. Initially, the wastewater stream(s) entering the system must be equalized in order to prevent either the flow rate or concentration from chemically shocking the bacteria. Vigorous mixing from aerators combines organic compounds and the activated sludge. The effluent is allowed to settle in a clarifier where a fraction of the sludge is returned to the aeration lagoon to reseed the population of microorganisms. The remaining sludge is usually land disposed.

The design and operating parameters of a biological treatment unit are facility-specific and are dependent on the composition of the wastewater feed stream. The primary factors that affect the removal of HAP's from wastewater in a biological treatment unit include the food-to-microorganism ratio, oxygen availability, mixed liquor suspended solids ratio, pH, temperature, and residence time. Another consideration is the maintenance of a suspended-growth process that generates biomass, uses recycled biomass, and periodically removes biomass from the process.

8.2.3 Closed-Vent Systems and Control Devices

By routing emissions from collection systems and treatment processes through closed-vent systems that are vented to control devices, organic HAP emissions volatilizing from wastewater to the air are minimized. Sections 5.2.1 and 5.2.2 of this document provide detailed discussions on combustion and recovery control devices.

8.3 WASTEWATER PROVISIONS

This section summarizes the wastewater provisions of the HON. The discussion focuses on the process wastewater provisions in §63.132 through §63.147 of Subpart G. However, Sections 8.3.5 and 8.3.6 address the cooling water provisions in §63.104 of Subpart F and the maintenance wastewater provisions in §63.105 of Subpart F.

8.3.1 Wastewater Definition

For the purpose of the HON, "wastewater" is defined as organic HAP-containing water, raw material, intermediate, product, by-product, co-product, or waste material that exits equipment in a SOCMI chemical manufacturing process unit and enters an individual drain system and either: (1) contains a total volatile organic HAP concentration of at least 5 ppmw and has a flow rate of 0.02 ℓ/min or greater; or (2) contains a total volatile organic HAP concentration of at least 10,000 ppmw at any flow rate. Wastewater includes both process wastewater and maintenance wastewater.

"Process wastewater" means wastewater which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product. Examples are product tank drawdown or feed tank drawdown; water formed during a chemical reaction or used as a reactant; water used to wash impurities from organic products or reactants; water used to cool or quench organic vapor streams through direct contact; and condensed steam from jet ejector systems pulling vacuum on vessels containing organics.

"Maintenance wastewater" means wastewater generated by the draining of process fluid from components in the chemical manufacturing process unit into an individual drain system prior to or during maintenance activities. Maintenance wastewater can be generated during planned and unplanned shutdowns and during periods not associated with a shutdown. Examples of activities that can generate maintenance wastewaters include descaling of heat exchanger tubing bundles, cleaning of distillation column traps, draining of low legs and high point bleeds, draining of pumps into an individual drain system, and draining of portions of the chemical manufacturing process unit for repair.

Other terms that are critical to understanding the HON wastewater provisions are "residual," "volatile organic hazardous air pollutant (VOHAP) concentration," and "point of generation."

"Residual" means any HAP-containing water or organic that is removed from a wastewater stream by a waste management unit or treatment process that does not destroy organics (nondestructive units). Examples of residuals from nondestructive wastewater management units are: the organic layer and bottom residue removed by a decanter or organic-waste separator and the overheads from a steam stripper or air stripper. Examples of materials which are not residuals are: silt; mud; leaves; bottoms from a steam stripper or air stripper; and sludges, ash, or other materials removed from wastewater being treated by destructive devices such as biological treatment units and incinerators.

The term "VOHAP concentration" is defined as the concentration of an individually speciated organic HAP in a wastewater stream or a residual that is measured by Method 305 of 40 CFR Part 63.

"Point of generation" means the location where process wastewater exits process unit equipment and enters an individual drain system or waste management unit. NOTE: The regulation allows determination of wastewater stream characteristics (1) at the point of generation or (2) downstream of the point of generation if corrections are made for changes in flow rate and VOHAP concentration. Such changes include losses by air emissions; reduction of VOHAP concentration or changes in flow rate by mixing with other water or wastewater streams; and reduction in flow rate or VOHAP concentration by treating or otherwise handling the wastewater stream to remove or destroy HAP's.

Table 8-2 is an applicability determination checklist for maintenance wastewater and process wastewater. The table presents a set of yes/no questions which can be used to determine if a maintenance wastewater stream or process wastewater stream is subject to the HON. If Table 8-2 indicates that a maintenance wastewater stream is subject to the HON, the stream must comply with the requirements described in Section 8.3.6 of this chapter. If Table 8-2 indicates that a process wastewater stream is subject to the HON, the stream must be categorized as either a Group 1 or Group 2 stream to determine which process wastewater provisions apply.

8.3.2 Sourcewide 1 Mg/yr Exemption

This exemption will be used most often for process wastewater streams which have a high concentration of HAP's but have a low flow rate. It includes two options. The first option is an applicability exemption in §63.138(c)(5), which exempts an existing source from process wastewater control requirements if the sum of the VOHAP mass flow rates of all Group 1 process wastewater streams is less than 1 Mg/yr when they exit process unit equipment. The second option is a control option in §63.138(c)(6), which exempts an existing source from compliance with process wastewater control requirements if the source ensures that the sum of the VOHAP mass flow rates of all untreated or partially-treated Group 1 process wastewater streams is less than 1 Mg/yr. Therefore, the source may elect to treat or partially treat some wastewater streams so that the total VOHAP mass flow rate for the source is less than 1 Mg/yr. All treated Group 1 process wastewater streams that are in compliance with a treatment option presented in Table 8-7 (presented in Section 8.3.4) may not be calculated in the source's total VOHAP mass flow rate. Also, all waste management units used to receive, manage, or treat Group 1 process wastewater streams must be in compliance with the control requirements described in Section 8.3.4.

8.3.3 Process Wastewater Group Determination

Group 1 and Group 2 wastewater streams are defined in §63.111 of Subpart G based on flow rate, VOHAP concentration, and whether the stream is part of a new or existing source. It is important to identify whether the source is new or existing because process wastewater streams from new sources are evaluated using more stringent criteria than streams from existing sources. Streams from new sources must be evaluated for concentration and flow rate of HAP's listed on Table 8 of

TABLE 8-2. APPLICABILITY CHECKLIST FOR PROCESS AND MAINTENANCE WASTEWATER

Evaluate each individual stream at its point of generation.

1a. Is the stream stormwater?

- ☐ Y Continue with this checklist.
- ☐ N Skip to question 2.

1b. Is the stormwater in a separate sewer (i.e., segregated from the wastewater sewer)?

- ☐ Y The stream is not a wastewater stream and is not subject to the HON.
- ☐ N Skip to question 4.

2. Is the stream a spill or water from a safety shower?

- ☐ Y The stream is not a wastewater stream and is not subject to the HON.
- ☐ N Continue with this checklist.

3a. Is the stream from fire fighting and deluge systems?

- ☐ Y Continue with this checklist.
- ☐ N Skip to question 4.

3b. Is the stream in a separate sewer (i.e., segregated from the wastewater sewer)?

- ☐ Y The stream is not a wastewater stream and is not subject to the HON.
- ☐ N Continue with this checklist.

4. Is the stream a wastewater stream discharged from a chemical manufacturing process unit subject to the HON?

- ☐ Y Continue with this checklist.
- ☐ N The stream is not a wastewater stream and is not subject to the HON.

5. Is the VOHAP concentration of the wastewater $\geq$10,000 ppmw?

- ☐ Y The wastewater stream is subject to the HON.
- ☐ N Continue with this checklist.

TABLE 8-2. APPLICABILITY CHECKLIST FOR PROCESS AND MAINTENANCE WASTEWATER, continued

6. Is the VOHAP concentration of the wastewater stream ≥5 ppmw and <10,000 ppmw and the flow rate ≥0.02 ℓpm?

   ☐ Y The wastewater stream is subject to the HON.

   ☐ N The wastewater stream is not subject to the HON.

7. Is the sum of the VOHAP mass flow rate of all Group 1 process wastewater streams at the source less than 1 megagram per year?

   ☐ Y The wastewater stream is not required to be controlled.

   ☐ N The wastewater stream is subject to the HON.

Subpart G of the HON. Table 8 is a list of those HAP's more volatile than benzene. Whether or not a wastewater stream from a new source is a Group 1 stream for HAP's listed on Table 8 of Subpart G of the HON, it must still be evaluated for HAP's listed on Table 9 of Subpart G of the HON. Table 8 is a subset of Table 9.

Process wastewater streams from existing sources do not need to be evaluated using the more stringent concentration and flow rate values that apply to Table 8 HAP's. Rather, process wastewater streams from existing sources must be evaluated using only the concentration and flow rate criteria for Table 9 HAP's.

Both new and existing facilities also may simplify the Group 1/Group 2 determination process by designating as a Group 1 process wastewater stream either a single process wastewater stream or a combination of process wastewater streams. This option allows sources to declare that at a designated location downstream of the point(s) of generation, all wastewater streams at this location and upstream are Group 1 and will therefore be controlled. The source is required to meet all requirements for Group 1 process wastewater streams (both upstream of the point of generation and downstream) for the designated Group 1 wastewater stream. By applying process knowledge or through sampling and analysis, sources may designate process wastewater streams as Group 1 streams. For example, if a Group 1 and Group 2 stream were mixed, and hard piped together, the combined stream could be designated as a Group 1 process wastewater stream and managed accordingly. Designating process wastewater streams as Group 1 streams will be used most commonly for combinations of streams.

Both new and existing facilities must consider all HAP's listed on Table 9 of Subpart G when designating process wastewater as Group 1. New sources must account for any HAP's listed on Table 8 of Subpart G when designating Group 1 wastewater streams.

Table 8-3 is a Group determination checklist for process wastewater streams. Section I of the table addresses streams at new sources, and Section II addresses both new and existing sources.

8.3.4 Process Wastewater Control Requirements

Group 1 process wastewater streams and equipment managing such streams at both new and existing sources must meet control requirements in §63.131 through §63.139 of Subpart G and the leak detection requirements in §63.148 of Subpart G unless they are included in emissions averaging. Existing sources are not required to meet control requirements if Group 1 process wastewater streams are included in the 1 Mg/yr source-wide exemption discussed in Section 8.3.2 of this section. Group 2 wastewater streams and equipment managing only Group 2 streams are not required to apply additional controls unless the 95-percent biological treatment option, which is discussed in Section 8.3.4.2, is used.

The HON wastewater provisions include control requirements for: (1) waste management units including wastewater tanks, surface impoundments, containers, individual drain systems, and oil-

TABLE 8-3. GROUP 1/GROUP 2 DETERMINATION FOR PROCESS WASTEWATER STREAMS

I. New Sources – Group 1/Group 2 Determination for Streams Containing HAP's Listed on Table 8 of Subpart G of the HON

1. Is the flow rate ≥0.02 ℓpm and the VOHAP concentration of any HAP listed on Table 8 of Subpart G of the HON ≥10 ppmw?

   □ Y The wastewater stream is Group 1 for HAP's listed on Table 8 of Subpart G of the HON.

   □ N The wastewater stream is Group 2 for HAP's listed on Table 8 of Subpart G of the HON. Continue to Section II of this table to determine if the wastewater stream is Group 1 for HAP's listed on Table 9 of Subpart G of the HON.

II. New and Existing Sources – Group 1/Group 2 Determination for Streams Containing HAP's Listed on Table 9 of Subpart G of the HON

1. Is the total VOHAP concentration of HAP's listed on Table 9 of Subpart G of the HON ≥10,000 ppmw at any flow rate or is the total VOHAP concentration of HAP's listed on Table 9 of Subpart G of the HON ≥1,000 ppmw and the flow rate ≥10 ℓpm?

   □ Y The wastewater stream is Group 1 for HAP's listed on Table 9 of Subpart G of the HON. Existing sources must continue with Part III to determine if control is required. New sources do not continue with Part III of this checklist.

   □ N The wastewater stream is Group 2 for HAP's listed on Table 9 of Subpart G of the HON. Do not continue with Part III of this checklist.

III. Existing Sources – 1 Mg/yr Source-Wide Exemption

1. Has the existing source elected to comply with the 1 Mg/yr source-wide exemption?

   □ Y The wastewater stream is Group 1, but is not required to comply with HON treatment and control requirements.

   □ N The wastewater stream is Group 1 for HAP's listed on Table 9 of Subpart G of the HON and must meet the treatment and control requirements.

water separators; (2) treatment processes including the design steam stripper, biological treatment units, or other treatment devices; and (3) closed-vent systems and control devices such as flares, catalytic incinerators, etc. This section provides an overview of the control requirements for such equipment when it receives, manages, or treats Group 1 process wastewater streams or residuals removed from process wastewater streams.

8.3.4.1 Waste Management Units

Waste management units are used for the collection and transport of Group 1 process wastewater as it exits process units and enters individual drain systems (i.e., point of generation). Waste management units convey process wastewater from the point(s) of generation to the treatment process(es).

Wastewater tanks. The control requirements for tanks holding Group 1 process wastewater are dependent on tank capacity and vapor pressure criteria. Table 8-4 provides the tank capacity and vapor pressure thresholds with a corresponding summary of control requirements. Wastewater tanks holding only Group 1 process wastewater streams must meet the control requirements in §63.133 of Subpart G unless the wastewater is included in an emissions average. Wastewater tanks holding only Group 2 wastewater streams are not required to apply any additional controls. Compliance options for wastewater tanks holding Group 1 process wastewater streams include:

- Reducing emissions of organic HAP's using a fixed-roof tank which is operated according to specified work practices (e.g., keeping hatches closed and bolted);

- Reducing emissions of organic HAP's using a fixed-roof tank and a closed-vent system that routes organic HAP vapors to a control device. The fixed roof must be operated according to specified work practices (e.g., keeping hatches closed and bolted) and equipped with a lid that remains in a closed, sealed position (e.g., covered by a lid that is gasketed and latched). The closed-vent system, which is subject to the requirements of §63.148 of Subpart G, and the control device, which is subject to the requirements of §63.139 of Subpart G, are discussed in Section 8.3.4.3 of this manual;

- Reducing emissions of organic HAP's using a fixed-roof tank equipped with an internal floating roof which is operated according to specified work practices, equipped with specified deck fittings, and equipped with specified seal configurations (i.e., a single liquid-mounted seal, a single metallic shoe seal, or double seals);

- Reducing emissions of organic HAP's using an external floating roof tank operated according to specified work practices, equipped with specified deck fittings, and equipped with specified seal configurations (i.e., double seals, with the primary seal to be either a liquid-mounted or a metallic shoe seal); or

TABLE 8-4. WASTEWATER TANK EMISSION CONTROL REQUIREMENTS

Capacity (m^3)	Vapor Pressure (kPa)	Control Requirements[a]
< 75	N/A	Use of a fixed roof as specified in §63.133(a)(1) of Subpart G
≥ 75 and < 151	< 13.1	
≥ 151	< 5.2	
≥ 75 and < 151	≥ 13.1	Use of a fixed roof and a closed-vent system that routes HAP vapors to a control device; <u>or</u> Use of a fixed roof and an internal floating roof that meets the requirements specified in §63.119(b) of Subpart G; <u>or</u> Use of an external floating roof that meets the requirements specified in §§63.119(c), 63.120(b)(5), and 63.120(b)(6) of Subpart G
≥ 151	≥ 5.2	

[a] To simplify the table, only an abbreviated description of the control requirement is given. Refer to the preceding text for a more detailed description of the requirements.

Using another means of emission limitation approved in accordance with §63.102(b) of Subpart F.

A detailed checklist of the work practices and deck fittings specified for fixed-roof tanks, internal floating roof tanks, and external floating roof tanks is provided in Section 8.4 in Table 8-12.

Surface Impoundments. Surface impoundments holding Group 1 process wastewater streams must meet the control requirements in §63.134 of Subpart G unless the wastewater is included in an emissions average. Surface impoundments holding Group 2 wastewater streams are not required to apply any additional controls. The control requirement for surface impoundments holding Group 1 process wastewater streams is:

- Reducing emissions of organic HAP's using a cover (e.g., air-supported structure or rigid cover) and a closed-vent system that routes organic HAP vapors to a control device. The cover must be operated according to specified work practices (e.g., keeping hatches, sampling ports, and gauge wells closed). The closed-vent system, which is subject to the requirements of §63.148 of Subpart G, and the control device, which is subject to the requirements of §63.139 of Subpart G, are discussed in Section 8.3.4.3 of this manual.

A detailed list of work practices is provided in Section 8.4 in Table 8-12.

Containers. The control requirements for containers holding Group 1 process wastewater are dependent on container capacity thresholds. Table 8-5 provides the container capacity criteria and corresponding summary of control requirements. Containers holding Group 1 process wastewater streams must meet the control requirements in §63.135 of Subpart G unless the wastewater is included in an emissions average. Containers holding Group 2 wastewater streams are not required to apply any additional controls.

A detailed checklist of the work practices specified for covers, submerged fill pipes, and enclosures is provided in Section 8.4 in Table 8-12.

Individual Drain Systems. Individual drain systems holding Group 1 process wastewater streams must meet the control requirements in §63.136 of Subpart G unless the wastewater is included in an emissions average. Individual drain systems holding Group 2 wastewater streams are not required to apply any additional controls. The control requirements for individual drain systems holding Group 1 process wastewater streams include:

- Reducing emissions of organic HAP's using a cover and closed-vent system on each opening in the individual drain system that routes organic HAP vapors to a control device. The cover must be operated according to specified work practices (e.g., keeping access hatches and sampling ports closed). The closed-vent system, which is subject to the requirements of §63.148 of

TABLE 8-5. CONTAINER[a] EMISSION CONTROL REQUIREMENTS

Capacity (m^3)	Control Requirements
$0.1 \leq$ capacity < 0.42	Container must meet DOT specifications and testing requirements under 49 CFR Part 178; or The cover and all openings must be maintained without leaks as specified in §63.148 of Subpart G
≥ 0.42	The cover and all openings must be maintained without leaks as specified in §63.148 of Subpart G; and Submerged fill pipes which meet specifications (e.g., fill pipe outlet can extend no more than six inches or within two fill pipe diameters of the bottom of the container) must be used; and Emissions of organic HAP's must be reduced using an enclosure. The enclosure must be operated with a closed-vent system routed to a control device.

[a] The term container is defined in the HON (§63.111) to have a capacity greater than or equal to 0.1 m^3.

Subpart G, and the control device, which is subject to the requirements of §63.139 of Subpart G, are discussed in Section 8.3.4.3 of this manual; or

Reducing emissions of organic HAP's using drains equipped with water seal controls (e.g., p-trap) or a tightly sealed cap or plug which are operated according to specified work practices; and junction boxes equipped with a cover and, if vented, a vent pipe, which are operated according to specified equipment standards and work practices.

A detailed checklist of the equipment standards and work practices is provided in Section 8.4 in Table 8-12.

Oil-water separators. Oil-water separators holding Group 1 process wastewater streams must meet the control requirements in §63.137 of Subpart G unless the wastewater is included in an emissions average. Oil-water separators holding Group 2 wastewater streams are not required to apply any additional controls. The control requirements for oil-water separators holding Group 1 process wastewater streams include:

- Reducing emissions of organic HAP's using a fixed roof and a closed-vent system that routes organic HAP vapors to a control device. The fixed roof must be operated according to specified work practices (e.g., keeping hatches bolted and closed). The closed-vent system, which is subject to the requirements of §63.148 of Subpart G, and the control device, which is subject to the requirements of §63.139 of Subpart G, are discussed in Section 8.3.4.3 of this manual;
- Reducing emissions of organic HAP's using a floating roof operated according to specifications provided in 40 CFR Part 60 Subpart QQQ §§63.693-2(a)(1)(i), (a)(1)(ii), (a)(2), (a)(3), and (a)(4). Where a floating roof is infeasible, such as over a weir mechanism, a fixed roof and closed-vent system routed to a control device may be used; or
- Using another equivalent means of emission limitation approved in accordance with §63.102(b) of Subpart F.

A detailed checklist of work practices and equipment standards is provided in Section 8.4 in Table 8-12.

8.3.4.2 Treatment Processes

Treatment processes are techniques that remove or destroy the organics in a wastewater stream or residual. Section 63.138 of the HON wastewater provisions includes several compliance options and specifies how treatment processes may be used to achieve compliance with one or more of the compliance options. The compliance options may be used individually or in combination to achieve the required emission control.

The following is a list of all of the compliance options covered in §63.138. However, it should be noted that not all of the listed options may be used by all sources. For example, some options are available only for existing sources. Other options may be used to treat only certain types of wastewater streams. All Group 1 wastewater streams not included in an emissions average must be controlled for air emissions prior to treatment and must be treated. Steam stripping and biological treatment are two common methods used for treating wastewater, but other methods not specified in the rule (e.g., thin film evaporation) also may be used. In many plant wastewater systems, Group 1 streams are combined with other Group 1 streams or with Group 2 streams before they are treated. Some of the treatment options that are allowed for individual Group 1 streams are not allowed for combined streams. Tables 8-6 and 8-7 provide details on the use of the available compliance options.

1. Recycling to a process without the stream being exposed to the atmosphere during recycling or at the process unit; or

2. Using a design steam stripper which meets the design criteria specified in §63.138(g) of Subpart G; or

3. Using a waste management unit or treatment process to reduce, by removal or destruction, the HAP mass flow rate of <u>each</u> organic HAP listed in Table 9 of Subpart G by at least the fraction removed (Fr) values specified in Table 9 of Subpart G; or

4. Using a waste management unit or treatment process to reduce by at least 99 percent, by removal or destruction, the total HAP mass flow rate of organic HAP's listed in either Table 8 or Table 9 of Subpart G; or

5. Using a waste management unit or treatment process to achieve the required HAP mass removal of organic HAP's as determined by procedures in §63.145(f) for HAP's listed on Table 8 of Subpart G and in §63.145(g) for HAP's listed on Table 9 of Subpart G. Compliance is demonstrated by calculating the actual mass removal according to the procedures specified in §63.145(h); or

6. Using a biological treatment unit, which destroys at least 95-percent total organic HAP mass of all HAP's listed on Table 9 of Subpart G, to treat all Group 1 and Group 2 process wastewater streams subject to the HON. This option may be combined with other compliance options as long as any treated wastewater that is mixed with untreated wastewater is controlled during collection and transport prior to entry in the biological treatment unit.

7. Using a waste management unit or treatment process to reduce, by removal or destruction, the <u>total</u> VOHAP average concentration of the organic HAP's listed in Table 9 of Subpart G to less than 50 ppmw; or

8. Using a waste management unit or treatment process to reduce, by removal or destruction, the average VOHAP concentration of <u>each</u> organic HAP listed in Table 8 of Subpart G to less than 10 ppmw; or

pjs/135/table-8.06

TABLE 8-6. PROCESS WASTEWATER COMPLIANCE OPTIONS FOR NEW SOURCES

Compliance Options[a,b]	Wastewater Streams Containing HAP's listed in Subpart G: Table 8[c]	Wastewater Streams Containing HAP's listed in Subpart G: Table 9[c]	Single or Combined Group 1/Group 2 Streams: Single Group 1 Stream	Single or Combined Group 1/Group 2 Streams: Combination of Group 1 Streams	Single or Combined Group 1/Group 2 Streams: Combination of Group 1 and Group 2 Streams	Single or Combined Group 1/Group 2 Streams: Group 2 Streams Only[d]
1. Recycle to a process	●	●	●	●	●	N/A
2. Use a steam stripper which meets the design criteria specified in §63.138(g) of Subpart G	●	●	●	●	●	N/A
3. Reduce HAP mass flow rate of <u>each</u> organic HAP by HAP-specific Fr values specified in Table 9 of Subpart G	N/A	●	●	●	●	N/A
4. Reduce HAP mass by 99%	●	●	●	●	●	N/A
5. Achieve required HAP mass removal as specified in §63.145(f) and/or §63.145(g) of Subpart G	●	●	●	●	●	N/A
6. Treat in a biological treatment unit that achieves 95% HAP removal	●	●	X	X	●[e]	N/A
7. Reduce total VOHAP concentration to less than 50 ppmw	N/A	●[f]	●[g]	X	X	N/A
8. Reduce total VOHAP concentration of <u>each</u> individually specified HAP to less than 10 ppmw	●	N/A	●[g]	X	X	N/A

● means the treatment option can be used for the wastewater stream; X means the treatment option is not allowed to be used for the wastewater stream; and N/A means the treatment option is not applicable.

[a] Options correspond to those listed in Section 8.3.4.2. To simplify the table, only an abbrieviated description of the option is given. Refer to Section 8.3.4.2 for a more detailed description of the requirements of the option.

[b] This table provides a list of treatment options. The stream(s) also need(s) to meet the suppression and control requirements described in Section 8.3.4.1.

TABLE 8-6. PROCESS WASTEWATER COMPLIANCE OPTIONS FOR NEW SOURCES, continued

[c] If a stream is Group 1 for Table 8 and/or Table 9 HAP's, it must meet the treatment requirements for Table 8 and/or Table 9 HAP's, as applicable.

[d] Group 2 streams that are not combined with Group 1 do not require treatment.

[e] If the option to achieve a 95-percent HAP destruction using biological treatment is selected, all Group 1 and Group 2 wastewater streams subject to the HON must be routed to the biological treatment unit.

[f] New sources selecting a concentration-based compliance option must ensure that the VOHAP concentration of each individual HAP listed on Table 8 of Subpart G are reduced to less than 10 ppmw.

[g] When meeting a concentration-based compliance option, the source must ensure that each Group 1 wastewater stream achieves the required VOHAP concentration. Dilution is not allowed as a method for reducing concentration.

TABLE 8-7. PROCESS WASTEWATER COMPLIANCE OPTIONS FOR EXISTING SOURCES

Compliance Options[a,b]	Wastewater Streams Containing HAP's listed in Table 9 of Subpart G[c]	Single or Combined Group 1/Group 2 Streams: Single Group 1 Stream	Single or Combined Group 1/Group 2 Streams: Combination of Group 1 Streams	Single or Combined Group 1/Group 2 Streams: Combination of Group 1 and Group 2 streams	Single or Combined Group 1/Group 2 Streams: Group 2 Streams Only[d]
1. Recycle to a process	●	●	●	●	N/A
2. Use a steam stripper which meets the design criteria specified in §63.138(g) of Subpart G	●	●	●	●	N/A
3. Reduce HAP mass flow rate of <u>each</u> organic HAP by the HAP-specific Fr values specified in Table 9 of Subpart G	●	●	●	●	N/A
4. Reduce HAP mass by 99%	●	●	●	●	N/A
5. Achieve required HAP mass removal as specified in §63.145(g) of Subpart G	●	●	●	●	N/A
6. Treat in a biological treatment unit that achieves 95% HAP removal	●	X	X	●[e]	N/A
7. Reduce total VOHAP concentration to less than 50 ppmw	●	●[f]	X	X	N/A
9. Use the process unit alternative compliance option	●	●[g]	●[g]	●[g]	N/A

● means the treatment option can be used for the wastewater stream; X means the treatment option is not allowed to be used for the wastewater stream; and N/A means the treatment option is not applicable.

[a] Options correspond to those listed in Section 8.3.4.2. To simplify the table, only an abbreviated description of the option is given. Refer to Section 8.3.4.2 for a more detailed description of the requirements of the option.

[b] This table provides a list of treatment options. The stream(s) also need(s) to meet the suppression and control requirements described in Section 8.3.4.1.

[c] Existing sources must comply with requirements only for HAP's listed on Table 9 of Subpart G.

[d] Group 2 streams that are not combined with Group 1 do not require treatment.

TABLE 8-7. PROCESS WASTEWATER COMPLIANCE OPTIONS FOR EXISTING SOURCES, continued

[e] If the option to achieve 95-percent HAP destruction using biological treatment is selected, all Group 1 and Group 2 wastewater streams subject to the HON must be routed to the biological treatment unit.

[f] When meeting a concentration-based compliance option, the source must ensure that each Group 1 wastewater stream achieves the required VOHAP concentration. Dilution is not allowed as a method for reducing concentration.

[g] The process unit alternative, which may only be used by existing sources, requires that all process wastewater (i.e., both Group 1 and Group 2) from a particular process unit be managed by either recycling to a process or reducing the total VOHAP concentration of each stream from the process unit to less than 10 ppmw.

9. Using the process unit alternative compliance option which requires that all process wastewater (i.e., both Group 1 and Group 2 streams) discharged from a single chemical manufacturing process unit be either (1) recycled to a process or (2) treated to achieve less than 10 ppmw total VOHAP average concentration of organic HAP's listed in Table 9 of Subpart G from each process wastewater stream exiting the process unit. If process wastewater streams are combined prior to treatment, the source must treat by destruction or removal those streams with greater than or equal to 10 ppmw total VOHAP concentration. Dilution is not an acceptable form of treatment. The combined streams must be controlled according to the provisions in §§63.133 through 63.137 prior to recycling or treatment.

A detailed checklist of the requirements for each of the treatment compliance options is provided in Section 8.4 in Table 8-13 of this manual.

8.3.4.3 Closed-Vent Systems and Control Devices

Closed-vent systems are used to transport organic HAP vapors from waste management units and treatment processes to control devices. In order to reduce emissions during transport, the duct work or piping in the closed-vent system is subject to periodic leak inspections in §63.148 of Subpart G. There are also provisions in §63.148 to prevent releases through by-pass lines. A detailed checklist of inspection requirements is provided in Section 8.4 in Table 8-14.

Control devices are used to recover or destroy organic HAP vapors. Section 63.139 of the HON wastewater provisions requires that control devices reduce by 95 percent the organic HAP emissions routed to them from waste management units and treatment processes. A variety of control devices may be used including flares; enclosed combustion devices such as thermal and catalytic incinerators, boilers, and process heaters; vapor recovery systems such as condensers, carbon adsorbers, and absorbers; scrubbers; and any other devices that can reduce total organic HAP emissions by 95 weight percent or greater. A detailed checklist of operating requirements is provided in Section 8.4 in Table 8-15.

8.3.4.4 Residuals Management

Residuals may be generated during the treatment of wastewater. As described in Section 8.3.1, residuals can include, among other things, the organic layer removed by a decanter or the overheads condensate from a steam stripper or air stripper. Residuals generated from the management of a Group 1 process wastewater stream must be managed according to §63.138(h) of Subpart G. Specifically, they must be controlled for air emissions by one of the following compliance options:

- Recycling the residual to a production process;
- Selling the residual for the purpose of recycling or for any other purpose. Residuals being stored prior to sale must be in compliance with waste

management unit control requirements. Additionally, once residuals are sold, they must continue to be managed in accordance with the HON;

- Returning the residual to a treatment process (e.g., send to a boiler); or
- Treating the residual to destroy the total combined HAP mass flow rate by 99 percent or more.

Any residuals generated from Group 2 streams do not require control under the HON; however, other regulations such as RCRA may be applicable.

8.3.5 Process Wastewater Testing, Monitoring, Recordkeeping and Reporting

For both Group 1 and Group 2 process wastewater streams, a record must be kept which provides the annual average flow rate and the VOHAP concentration for each process wastewater stream. If process knowledge is used to determine that a process wastewater stream is Group 2, a record of how the process knowledge was used to make the decision must be maintained.

As part of the Implementation Plan submittal, sources must submit information on flow rate, concentration, Group 1/Group 2 status, and intended treatment technology. Appendix E specifies the information that must be submitted with the Implementation Plan. Each new source must submit the information included in Appendix E, Table E-1 for the HAP's listed on Table 8 of Subpart G. For HAP's listed on Table 9 of Subpart G, both new and existing sources must submit the information specified in Table E-2 of Appendix E. New sources are not required to provide duplicative information in Tables E-1 and E-2. If a source elects to use a waste management unit, treatment process, or control device that is not specifically discussed in the rule, the source must submit a request for approval to monitor alternative parameters as part of the Implementation Plan.

As part of the Notification of Compliance Status, sources must submit more specific details on the waste management units, treatment processes, and control devices that are being used, including design analyses, performance test results, and compliance determination results. For HAP's listed on Table 8 of Subpart G, each new source must submit the information described in Appendix F, Table F-1. For HAP's listed on Table 9 of Subpart G, both new and existing sources must submit the information specified in Table F-2 of Appendix F. New sources are not required to provide duplicative information in Tables F-1 and F-2. Existing sources that use the process unit alternative must submit the additional information described in Appendix F, Table F-3.

For each treatment process or waste management unit identified in Tables F-1, F-2, and F-3, the sources also must complete Table F-4 for treatment processes and Table F-5 for waste management units. For each residual removed from a Group 1 process wastewater stream, sources must submit the information described in Table F-6.

If the vapors from a waste management unit or treatment process are routed to a flare, the sources must submit records and reports of flare design, visible emission readings, heat content determinations, flow rate measurements, exit velocity, and periods when the pilot flame is absent. For each control device that is not a flare, the source must submit information justifying site-specific monitoring parameter ranges and either the results of performance tests or a design evaluation for a thermal incinerator, catalytic incinerator, boiler or process heater, condenser, carbon adsorption system, or scrubber. The documentation must include the vent stream composition, constituent concentrations, flow rate, and control device operating parameters. Some control devices are not required to submit design evaluation criteria, including: (1) boilers or process heaters either with a design heat input capacity of 44 MW or greater, or into which the emission stream is introduced with the primary fuel; or (2) boilers or process heaters burning hazardous waste for which the owner or operator has been issued either a final permit or a certification of interim status under RCRA 40 CFR Parts 270 and 266, Subpart H.

For waste management units, treatment processes, and control devices, sources must submit results of inspections and monitoring as part of the Periodic Report, which is submitted semi-annually. A list of inspection and monitoring requirements is provided for waste management units in Table 8-8, for treatment processes in Table 8-9, and for control devices in Table 8-10. Table 8-11 provides a list of reporting and recordkeeping requirements for control devices. A copy of all reports submitted to the EPA and/or the State must be maintained onsite for a total of five years.

8.3.6 Heat Exchange Systems and Cooling Water Management Requirements

A heat exchange system, as defined in the HON, includes any recirculating heat exchange system (i.e., 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. The requirements for managing cooling water are provided in §63.104 of Subpart F.

The HON requires sources using heat exchange systems (either recirculating or once-through heat exchange systems) to monitor cooling water for leaks. The HON requires sources using recirculating heat exchange systems to monitor for leaks of HAP's listed on Table 2 of Subpart F, except for the following: benzotrichloride (98077), bis(chloromethyl)ether (542881), maleic anhydride (108316), and methyl isocyanate (624839). Sources using once-through heat exchange systems are required to monitor for leaks of all HAP's listed on Table 9 of Subpart G.

All heat exchange systems must be monitored for leaks using one of the following parameters: total HAP, total VOC, speciated HAP's, or TOC for semi-volatile HAP's listed in Method 625. Use of TOC is not allowed for volatile HAP's. Monitoring must be performed monthly for the first six months and quarterly thereafter.

TABLE 8-8. INSPECTION AND MONITORING REQUIREMENTS FOR WASTE MANAGEMENT UNITS

To Comply With	Inspection or Monitoring Requirement	Frequency	Method
WASTEWATER TANKS:			
63.133(b)(1)	Inspect fixed roof and all openings for leaks[a]	Initially Semi-annually	Method 21[b] Visual
63.133(c)	Inspect internal floating roof in accordance with §§63.120(a)(2) and (a)(3)	See §63.120(a)(2) and (a)(3)	Visual
63.133(d)	Measure external floating roof seal gaps in accordance with §§63.120(b)(2)(i) through (b)(4)		See §63.120(b)(2)(i) through (b)(4)
	- Primary seal gaps	Once every 5 years	
	- Secondary seal gaps	Annually	
63.133(f) 63.133(g)	Inspect wastewater tank for control equipment failures and improper work practices	Semi-annually	Visual
SURFACE IMPOUNDMENTS:			
63.134(b)(1)(i) 63.134(b)(1)(ii)	Inspect cover and all openings for leaks[a]	Initially Semi-annually	Method 21[b] Visual
63.134(c)	Inspect surface impoundment for control equipment failures and improper work practices	Semi-annually	Visual
CONTAINERS:			
63.135(b)(1) 63.135(b)(2)(ii)	Inspect cover and all openings for leaks[a]	Initially	Method 21[b]
63.135(d)(1)	Inspect enclosure and all openings for leaks[a]	Initially Semi-annually	Method 21[b] Visual
63.135(e)	Inspect container for control equipment failures and improper work practices	Semi-annually	Visual
INDIVIDUAL DRAIN SYSTEMS[c]:			
63.136(b)(1)	Inspect cover and all openings for leaks[a]	Initially Semi-annually	Method 21[b] Visual
63.136(c)	Inspect individual drain system for control equipment failures and improper work practices	Semi-annually	Visual

TABLE 8-8. INSPECTION AND MONITORING REQUIREMENTS FOR WASTE MANAGEMENT UNITS, continued

To Comply With	Inspection or Monitoring Requirement	Frequency	Method
63.136(e)(1)	Verify flow of water supply to all drains using water seals to ensure appropriate water levels and to prevent other conditions that reduce water seal control effectiveness	Semi-annually	Visual
63.136(f)(1)	Inspect all drains using tightly-sealed caps or plugs to ensure caps and plugs are in place and properly installed	Semi-annually	Visual
63.136(f)(2)	Inspect all junction boxes to ensure covers are in place and have tight seals around edges	Semi-annually	Visual
63.136(f)(3)	Inspect unburied portion of all sewer lines for cracks and gaps	Semi-annually	Visual
OIL-WATER SEPARATORS:			
63.137(b)(1)	Inspect fixed roof and all openings for leaks[a]	Initially Semi-annually	Method 21[b] Visual
63.137(c)	Measure floating roof seal gaps in accordance with 40 CFR 60.696(d)(1)		See 40 CFR 60.696(d)(1)
	- Primary seal gaps	Once every 5 years	
	- Secondary seal gaps	Annually	
63.137(d)	Inspect oil-water separator for control equipment failures and improper work practices	Semi-annually	Visual

[a] Leaks are detectable emissions of 500 parts per million by volume above background.

[b] Method 21 of 40 CFR part 60, appendix A. The owner or operator shall comply with the requirements of §63.148.

[c] As specified in §63.136(a), the owner or operator shall comply with the requirements of either §63.136(b) or (c).

TABLE 8-9. MONITORING REQUIREMENTS FOR TREATMENT PROCESSES

	To Comply With	Parameters to be Monitored	Frequency	Methods[a]
1.	HAP mass removal of each organic HAP compound or total organic HAP compounds in a properly operated biological treatment unit 63.138(b)(1)(iii)(C) 63.138(c)(1)(iii)(D)	Appropriate parameters may be monitored upon approval from the permitting authority in accordance with the requirements specified in §63.143(c)	Continuous	Method 304, or any other method which has been approved by EPA during compliance demonstrations
2.	HAP mass removal of 95 percent of total organic HAP compounds in a properly operated biological treatment unit 63.138(e)	Appropriate parameters may be monitored upon approval from the permitting authority in accordance with the requirements specified in §63.143(c)	Continuous	Method 304, or any other method which has been approved by EPA during compliance demonstrations
3.	Design steam stripper 63.138(g)(3), (4), and (5)	Steam flow rate	Continuous	Integrating steam flow monitoring device equipped with a continuous recorder
		Wastewater feed mass flow rate	Continuous	Liquid flow meter installed at stripper influent and equipped with a continuous recorder
		Wastewater feed temperature	Continuous	Liquid temperature monitoring device installed at stripper influent and equipped with a continuous recorder
4.	Alternative monitoring parameters	Other parameters may be monitored upon approval from the Administrator in accordance with the requirements specified in §63.143(d)		

[a] If method(s) are used to measure organic HAP concentrations in a waste or wastewater stream, rather than measuring VOHAP concentrations in an air stream purged from a waste or wastewater stream, the correction factors listed in table 34 of Subpart G may be used to adjust the results to provide a measure of the volatile portion (i.e., the VOHAP concentration) of the organic HAP compounds.

TABLE 8-10. MONITORING REQUIREMENTS FOR CONTROL DEVICES

Control Device	Monitoring Equipment Required	Parameters to be Monitored	Frequency
Thermal Incinerator[a]	Temperature monitoring device installed in firebox or in ductwork immediately downstream of firebox[b] and equipped with a continuous recorder[c]	Firebox temperature	Continuous
Catalytic Incinerator[a]	Temperature monitoring device installed in gas stream immediately before and after catalyst bed and equipped with a continuous recorder[c]	1. Temperature upstream of catalyst bed <u>or</u> 2. Temperature difference across catalyst bed	Continuous
Flare[a]	Heat sensing device installed at the pilot light and equipped with a continuous recorder[c]	Presence of a flame at the pilot light	Hourly records of whether the monitor was continuously operating and whether the pilot flame was continuously present during each hour
Boiler or process heater <44 megawatts and vent stream is not mixed with the primary fuel[a]	Temperature monitoring device installed in firebox[b] and equipped with continuous recorder[c]	Combustion temperature	Continuous
Condenser[a]	Temperature monitoring device installed at condenser exit and equipped with continuous recorder[c]	Condenser exit (product side) temperature	Continuous
Carbon Adsorber (Regenerative)[a]	Integrating regeneration stream flow monitoring device having an accuracy of $\pm$ 10 percent, <u>and</u> Carbon bed temperature monitoring device	Total regeneration stream mass flow during carbon bed regeneration cycle(s) Temperature of carbon bed after regeneration [and within 15 minutes of completing any cooling cycle(s)]	For each regeneration cycle, record the total regeneration stream mass flow For each regeneration cycle and within 15 minutes of completing any cooling cycle, record the carbon bed temperature
Carbon Adsorber (Non-regenerative)[a]	Organic compound concentration monitoring device[d]	Organic compound concentration of adsorber exhaust	Daily or at intervals no greater than 20 percent of the design carbon replacement interval, whichever is greater

(Continued)

TABLE 8-10. MONITORING REQUIREMENTS FOR CONTROL DEVICES, continued

Control Device	Monitoring Equipment Required	Parameters to be Monitored	Frequency
All Control Devices (as an alternative to the above)	Organic monitoring device installed at the outlet of the control device and equipped with a continuous recorder[c]	Concentration level or reading	Continuous
All control devices	1. Flow indicator installed at all bypass lines to the atmosphere and equipped with continuous recorder[c] <u>or</u>	1. Presence of flow diverted from the control device to the atmosphere <u>or</u>	Hourly records of whether the flow indicator was operating and whether the flow was detected at any time during each hour
	2. Valves sealed closed with car-seal or lock-and-key configuration	2. Monthly inspections of sealed valves	Monthly
Alternative monitoring parameters	Other parameters may be monitored upon approval from the Administrator in accordance with the requirements in §63.143(e)(3)		

[a] Alternatively, these devices may comply with the organic monitoring device provisions listed at the end of this table under "All Control Devices".

[b] Monitor may be installed in the firebox or in the ductwork immediately downstream of the firebox before any substantial heat exchange is encountered.

[c] "Continuous recorder" is defined in §63.111 of Subpart G.

[d] As an alternative to conducting this monitoring, an owner or operator may replace the carbon in the carbon adsorption system with fresh carbon at a regular predetermined time interval that is less than the carbon replacement interval that is determined by the maximum design flow rate and organic concentration in the gas stream vented to the carbon adsorption system.

TABLE 8-11. PERIODIC REPORTING REQUIREMENTS FOR CONTROL DEVICES USED TO COMPLY WITH §§63.133-63.139

Control Device	Reporting Requirements
Thermal Incinerator	1. Report all daily average[a] temperatures that are outside the range established in the NCS[a] or operating permit and all operating days when insufficient monitoring data are collected[c]
Catalytic Incinerator	1. Report all daily average[a] upstream temperatures that are outside the range established in the NCS[b] or operating permit 2. Report all daily average[a] temperature differences across the catalyst bed that are outside the range established in the NCS[b] or operating permit 3. Report all operating days when insufficient monitoring data are collected[c]
Boiler or Process Heater with a design heat input capacity less than 44 megawatts and vent stream is not mixed with the primary fuel	1. Report all daily average[a] firebox temperatures that are outside the range established in the NCS[b] or operating permit and all operating days when insufficient monitoring data are collected[c]
Flare	1. Report the duration of all periods when the pilot flame is absent
Condenser	1. Report all daily average[a] exit temperatures that are outside the range established in the NCS[b] or operating permit and all operating days when insufficient monitoring data are collected[c]
Carbon Adsorber	1. Report all carbon bed regeneration cycles when the total regeneration stream mass flow is outside the range established in the NCS[b] or operating permit 2. Report all carbon bed regeneration cycles during which the temperature of the carbon bed after regeneration is outside the range established in the NCS[b] or operating permit 3. Report all operating days when insufficient monitoring data are collected[c]
All Control Devices	1. Report the times and durations of all periods when the vent stream is diverted through a bypass line or the monitor is not operating, or 2. Report all monthly inspections that show the valves are not sealed closed or the seal has been changed

[a] The daily average is the average of all values recorded during the operating day, as specified in §63.147(e) of Subpart G.

[b] NCS = Notification of Compliance Status described in §63.152 of Subpart G.

[c] The periodic reports shall include the duration of periods when monitoring data are not collected for each excursion as defined in §63.152(c)(2)(ii)(A) of Subpart G.

Monitoring parameter (e.g., total HAP, total VOC) concentrations in cooling water must be determined using any EPA-approved method listed in 40 CFR Part 136 that is sensitive to concentrations as low as 1 ppm. The same method must be used to measure the inlet and the outlet concentration of the heat exchange system. A leak is detected if a statistically significant difference in concentration of at least 1 ppm at a 95 percent confidence level is observed. Leaks must be repaired no more than 45 days after monitoring tests indicate a leak is present. After a leak is repaired, the source must monitor monthly for six months and quarterly thereafter to ensure that the leak does not recur.

Sources are not required to comply with leak detection monitoring requirements if either: (1) the heat exchange system is operated with the minimum pressure on the cooling water side at least 35 kilopascals greater than the maximum pressure on the process side; or (2) the once-through heat exchange system has an NPDES permit with an allowable discharge limit of less than 1 ppm. Table 8-16 provides a detailed checklist of requirements for heat exchange systems requiring leak detection monitoring.

8.3.7 Maintenance Wastewater Management Requirements

Maintenance wastewater is defined as wastewater generated by the draining of process fluid from components in the chemical manufacturing process unit into an individual drain system prior to or during maintenance activities. Maintenance wastewater can be generated during planned and unplanned shutdowns and during periods not associated with a shutdown. Examples of activities that can generate maintenance wastewater include descaling of heat exchanger tubing bundles, cleaning of distillation column traps, draining of low legs and high point bleeds, draining of pumps into an individual drain system, and draining of portions of the chemical manufacturing process unit for repair. The requirements for managing maintenance wastewater are provided in §63.105 of Subpart F.

As part of the facility's startup, shutdown, and malfunction plan required by §63.6(e)(3) of 40 CFR Part 63 Subpart A, the HON requires sources to prepare a description of procedures for managing maintenance wastewater. The description must include maintenance procedures for managing wastewater generated from emptying and purging equipment during temporary shutdowns that are necessary for inspections, maintenance, and repair (i.e., maintenance-turnaround) and during periods which are not shutdowns (i.e., routine maintenance). At a minimum, the description must specify: (1) the process equipment and/or maintenance tasks that are expected to create wastewater during maintenance activities; (2) the procedure for properly managing the wastewater and controlling HAP emissions to the atmosphere; and (3) the procedures for clearing materials from process equipment.

The description is to be modified and updated as needed following each maintenance procedure. Records of the maintenance procedures must be kept as part of the startup, shutdown, and malfunction plan. A detailed checklist of the maintenance wastewater requirements are provided in Table 8-17.

8.4 WASTEWATER INSPECTION PROCEDURES

Tables 8-12 through 8-17 present checklists that can be used to verify whether a wastewater stream is in compliance with the wastewater provisions of the HON. The tables list the specific records and reports that a facility is required to keep/submit for each type of control equipment used for compliance.

The checklists are divided as follows:

Table 8-12: Waste Management Units

Table 8-13: Treatment Processes

Table 8-14: Closed-Vent Systems

Table 8-15: Control Devices

Table 8-16: Heat Exchange Systems

Table 8-17: Maintenance Wastewater.

The owner or operator may comply using control techniques other than those listed in Tables 8-12 through 8-17. In these cases, the inspector should verify: (1) that the facility obtained approval from the Administrator (or agency to which authority has been delegated) and (2) that the approved parameters are recorded and reported.

8.5 REFERENCES

1. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Office of Research and Development. Control Technology Center, Industrial Wastewater Volatile Organic Compound Emissions - Background Information for BACT/LAER Determinations. EPA 450/3-90-004. Research Triangle Park, NC. January 1990.

2. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Stationary Source Compliance Series, Regulatory and Inspection Manual for Petroleum Refinery Wastewater Systems. EPA-340/1-91-013. Research Triangle Park, NC. September 1991.

3. LaGrega, Michael and associates. Hazardous Waste Management. McGraw-Hill, Inc. New York, NY. 1994.

4. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Office of Research and Development. Hazardous Air Pollutant Emissions from Process Units in the SOCMI -- Background Information for Proposed Standards, Volume 1B: Control Technologies. EPA-453/D-92-016b. Research Triangle Park, NC. November 1992.

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

Complete this form for waste management units. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

I. REVIEW OF RECORDS

A.	**WASTEWATER TANKS**			
1.	The occurrence of each semiannual visual inspection for improper work practices is recorded.		Y ☐	N ☐
2.	The occurrence of each semiannual visual inspection for control equipment failures is recorded.		Y ☐	N ☐
3.	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]			
	(a)	Date of the inspection.	Y ☐	N ☐
	(b)	Identification of the wastewater tank having the failure.	Y ☐	N ☐
	(c)	Description of the failure.	Y ☐	N ☐
	(d)	Description of the nature of the repair.	Y ☐	N ☐
	(e)	Date the repair was made.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF

Review records listed in Table 8-14.

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND A CLOSED-VENT SYSTEM ROUTED TO A CONTROL DEVICE

Review records listed in Tables 8-14 and 8-15.

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF

1.	Review records of Seal Gap Measurements.			
	(a)	Records indicate that seal gap measurements were performed annually for the secondary seal and every five years for the primary seal.[b]	Y ☐	N ☐
	(b)	When a failure is detected, the date and results of seal gap measurements are submitted in periodic reports, annually for the secondary seal and every five years for the primary seal.	Y ☐	N ☐

(continued)

(c)	When a failure is detected in the seal(s), the date and results of the visual inspection of the seals (which is performed together with the seal gap measurement) are included in the PR.[a]	Y ☐	N ☐
(d)	The date of the seal gap measurement, the raw data obtained during the measurement, and the calculations made are recorded.	Y ☐	N ☐
(e)	The raw data and calculations recorded for seal gap measurements is consistent with the information provided in the PR.	Y ☐	N ☐
(f)	For each seal gap measurement in a periodic report, there is a report notifying the Administrator of the measurement in advance. If the measurement had been planned, then the report was submitted 30 days in advance of the measurement. If the measurement was not planned, then the report was submitted at least 7 days in advance of the measurement and included an explanation of why the measurement was unplanned.	Y ☐	N ☐
(g)	If a failure was detected during a seal gap measurement and visual seal inspection, the PR indicated the date and the nature of the repair or the date the wastewater tank was emptied.	Y ☐	N ☐
(h)	If the report described in (g) documents that the repair was made more than 45 days after the failure was detected, then the next PR includes documentation of the use of up to two 30-day extensions for completing the repair, including identification of the wastewater tank, a description of the failure, documentation that alternate storage capacity was unavailable, a schedule of actions to be taken to repair the control equipment or empty the wastewater tank as soon as possible, and the date the wastewater tank was emptied and the nature of and date the repair was made.	Y ☐	N ☐

2. Review records of internal visual inspections.

(a)	The occurrence of each internal visual inspection is recorded.	Y ☐	N ☐

(continued)

(b)	For each internal visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all wastewater tanks for which failures were detected, (3) a description of those failures, and (4) either the date and nature of the repair or the date the wastewater tank was emptied.	Y ☐	N ☐
(c)	Any repairs performed as described in (b) were completed before the repaired wastewater tank was refilled.	Y ☐	N ☐
(d)	For each internal visual inspection documented in a PR, there is a report notifying the Administrator in advance of the date the inspected wastewater tank would be refilled after the inspection. If the inspection had been planned, the report was submitted 30 days in advance of refilling the wastewater tank. If the inspection was not planned, then the report was submitted at least 7 days in advance of refilling the wastewater tank and included an explanation of why the inspection was unplanned.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND AN INTERNAL FLOATING ROOF

1. Review records of external visual inspections

(a)	The occurrence of each annual external visual inspection is recorded. If the floating roof is equipped with double seals, the source will not have performed this inspection if it chose to perform internal visual inspections once every 5 years instead of performing both annual external visual inspections and internal visual inspections at least once every 10 years. See Item 2 below.	Y ☐	N ☐
(b)	For each annual external visual inspection in which a failure is detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all wastewater tanks for which failures were detected, (3) a description of those failures, and (4) the date and the nature of the repair or the date the wastewater tank was emptied.	Y ☐	N ☐

(continued)

	(c)	If the report described in (a) and (b) documents that the repair was made more than 45 days after the failure was detected, then the next PR includes documentation of the use of up to two 30-day extensions for completing the repair and the following information: identification of the wastewater tank, a description of the failure, documentation that alternate storage capacity was unavailable, a schedule of actions to be taken to repair the control equipment or empty the wastewater tank as soon as possible, and the date the wastewater tank was emptied and the nature of and date the repair was made.	Y ☐	N ☐
2.	Review records of internal visual inspections.			
	(a)	The occurrence of each internal visual inspection is recorded. If the floating roof is equipped with double seals and the source chose not to perform annual external inspections [described in item 1(b)], this inspection will be performed, recorded, and reported at least every 5 years.	Y ☐	N ☐
	(b)	For each internal visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all wastewater tanks for which failures were detected, (3) a description of those failures, and (4) the date and nature of the repair.	Y ☐	N ☐
	(c)	Any repairs performed as described in (b) were completed before the repaired wastewater tank was refilled.	Y ☐	N ☐
	(d)	For each internal visual inspection documented in a PR, there is a report notifying the Administrator in advance of the date the inspected wastewater tank would be refilled after the inspection. If the inspection had been planned, the report was submitted 30 days in advance of refilling the wastewater tank. If the inspection was not planned, then the report was submitted at least 7 days in advance of refilling the wastewater tank and included an explanation of why the inspection was unplanned.	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

IF THE CONTROL EQUIPMENT IS A CLOSED VENT SYSTEM AND CONTROL DEVICE				
	Review records listed in Tables 8-14 and 8-15.			
B.	**SURFACE IMPOUNDMENTS**			
1.	The occurrence of each semiannual visual inspection for improper work practices is recorded.		Y ☐	N ☐
2.	The occurrence of each semiannual visual inspection for control equipment failures is recorded.		Y ☐	N ☐
3.	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]			
	(a)	Date of the inspection.	Y ☐	N ☐
	(b)	Identification of the surface impoundment having the failure.	Y ☐	N ☐
	(c)	Description of the failure.	Y ☐	N ☐
	(d)	Description of the nature of the repair.	Y ☐	N ☐
	(e)	Date the repair was made.	Y ☐	N ☐
	[Note: Other recordkeeping requirements may be listed in Tables 8-14 and 8-15.]			
C.	**CONTAINERS**			
1.	A record of the capacity of each container at the facility is maintained.		Y ☐	N ☐
2.	The occurrence of each semiannual visual inspection for improper work practices is recorded.		Y ☐	N ☐
3.	The occurrence of each semiannual visual inspection for control equipment failures is recorded.		Y ☐	N ☐
4.	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]			
	(a)	Date of the inspection.	Y ☐	N ☐
	(b)	Identification of the container having the failure.	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

	(c)	Description of the failure.	Y ☐	N ☐
	(d)	Description of the nature of the repair.	Y ☐	N ☐
	(e)	Date the repair was made.	Y ☐	N ☐
		[Note: Other recordkeeping requirements may be listed in Tables 8-14 and 8-15.]		
D.	**INDIVIDUAL DRAIN SYSTEMS**			
1.		If the control equipment is a cover and a closed-vent system routed to a control device:		
	(a)	The occurrence of each semiannual visual inspection for improper work practices is recorded.	Y ☐	N ☐
	(b)	The occurrence of each semiannual visual inspection for control equipment failures is recorded.	Y ☐	N ☐
	(c)	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]		
		(1) Date of the inspection.	Y ☐	N ☐
		(2) Identification of the individual drain system having the failure.	Y ☐	N ☐
		(3) Description of the failure.	Y ☐	N ☐
		(4) Description of the nature of the repair.	Y ☐	N ☐
		(5) Date the repair was made.	Y ☐	N ☐
		[Note: Other recordkeeping requirements may be listed in Tables 8-14 and 8-15.]		
2.		For drains and junction boxes, as an alternative to Item 1:		
	(a)	A record documents the occurrence of each semiannual inspection of drains to ensure that caps or plugs are in place and properly installed [or (b)]	Y ☐	N ☐
	(b)	A record documents the occurrence of each semiannual verification of water supply to the drain.	Y ☐	N ☐
	(c)	A record documents the occurrence of each semiannual inspection of junction boxes to ensure that a cover is in place and has a tight seal around the edge.	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

	(d)	A record documents the occurrence of each semiannual inspection of the unburied portion of each sewer line for indication of cracks or gaps.	Y ☐	N ☐
E.	OIL-WATER SEPARATORS			
1.	The occurrence of each semiannual visual inspection for improper work practices is recorded.		Y ☐	N ☐
2.	The occurrence of each semiannual visual inspection for control equipment failures is recorded.		Y ☐	N ☐
3.	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]			
	(a)	Date of the inspection.	Y ☐	N ☐
	(b)	Identification of the oil-water separator having the failure.	Y ☐	N ☐
	(c)	Description of the failure.	Y ☐	N ☐
	(d)	Description of the nature of the repair.	Y ☐	N ☐
	(e)	Date the repair was made.	Y ☐	N ☐
IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND A CLOSED-VENT SYSTEM ROUTED TO A CONTROL DEVICE				
	Review records listed in Tables 8-14 and 8-15.			
IF THE CONTROL EQUIPMENT IS A FLOATING ROOF				
1.	Records indicate that seal gap measurements were performed annually for the secondary seal and every five years for the primary seal.		Y ☐	N ☐
2.	When a failure is detected, the date and results of seal gap measurements are submitted in periodic reports, annually for the secondary seal and every five years for the primary seal.		Y ☐	N ☐
3.	When a control equipment failure is detected in the seal(s), the date and results of the visual inspection of the seals (which is performed together with the seal gap measurement) are included in the PR.[a]		Y ☐	N ☐

(continued)

4.	The date of the seal gap measurement, the raw data obtained during the measurement, and the calculations made are recorded.	Y ☐	N ☐
5.	The raw data and calculations recorded for seal gap measurements is consistent with the information provided in the PR.	Y ☐	N ☐
6.	If a failure was detected during a seal gap measurement and visual seal inspection, the PR indicated the date and the nature of the repair or the date the wastewater tank was emptied.	Y ☐	N ☐

II. VISUAL INSPECTION

A. WASTEWATER TANKS

IF THE CONTROL EQUIPMENT IS A FIXED ROOF

1.	All openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair). [Note: The inspector should also check the fixed roof for leaks in accordance with the procedures specified in Table 8-14.]	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF WITH A CLOSED-VENT SYSTEM ROUTED TO A CONTROL DEVICE

1.	All openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair). [Note: The inspector should also check the fixed roof and closed-vent system for leaks in accordance with the procedures specified in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF

Note: The inspector should not perform the inspection while on the EFR if the roof is below four feet of the top of the tank and if the inspector is not equipped with the proper respiratory protection. Based on the inspector's assessment of the availability of records documenting the design of the control equipment, an adequate inspection without respiratory protection may be performed with a combination of a record inspection and a visual inspection conducted from the platform with the aid of vision-enhancing devices (binoculars).

1.	The EFR is resting on the liquid surface of the stored material, unless the EFR is resting on the roof leg supports because the wastewater tank has just been emptied and degassed or the tank is partially or completely emptied before being subsequently refilled or degassed.			Y ☐	N ☐
2.	The external floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).			Y ☐	N ☐
3.	There is a secondary seal installed above the primary seal.[b]			Y ☐	N ☐
4.	Inspect the secondary seal.[b]				
	(a)	The secondary seal is continuous and completely covers the annular space between the EFR and the tank wall.		Y ☐	N ☐
	(b)	There are no holes, tears, or other openings in the seal or seal fabric.		Y ☐	N ☐
	(c)	There are no visible gaps between the seal and the wall of the wastewater tank, except as specified in (e)(1) and (e)(2).		Y ☐	N ☐
	(d)	The seal is not detached from the floating deck.		Y ☐	N ☐
	(e)	Perform seal gap measurement of the secondary seal as specified in §63.120(b)(2)(i) through (b)(2)(iii) and §63.120(b)(4) of the HON storage provisions.			
		(1)	The accumulated area of gaps between the tank wall and the secondary seal does not exceed 21.2 cm^2 per meter of tank diameter.	Y ☐	N ☐
		(2)	The maximum gap width between the tank wall and the seal does not exceed 1.27 cm.	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

5.	Inspect the primary seal.[b]			
	(a)	The primary seal is either a metallic shoe seal or a liquid-mounted seal.[b]	Y ☐	N ☐
	(b)	The primary seal forms a continuous closure that completely covers the annular space between the wall of the wastewater tank and the edge of the EFR, except as described in (f)(1) and (f)(2).	Y ☐	N ☐
	(c)	There are no holes, tears, or other openings in the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used).	Y ☐	N ☐
	(d)	If the primary seal is a metallic shoe seal:		
		(1) The lower end of the metallic shoe send extends into the stored liquid (no specific distance);	Y ☐	N ☐
		(2) The upper end of the metallic shoe seal extends a minimum vertical distance of 61 cm above the stored liquid surface; and	Y ☐	N ☐
		(3) There is a flexible coated fabric that spans the space between the metal shoe and the tank wall.	Y ☐	N ☐
	(e)	If the primary seal is a liquid-mounted seal, the seal is in contact with the liquid between the wall of the wastewater tank and the EFR.	Y ☐	N ☐
	(f)	Perform seal gap measurements of the primary seal as specified in §63.120(b)(2)(i) through (b)(2)(iii) and §63.120(b)(4) of the HON storage provisions.		
		(1) The accumulated area of gaps between the tank wall and the primary seal does not exceed 212 cm^2 per meter of tank diameter.	Y ☐	N ☐
		(2) The maximum gap width between the tank wall and the seal does not exceed 3.81 cm.	Y ☐	N ☐
6.	Inspect deck openings.			
	(a)	If the EFR is non-contact, then each opening in the floating roof, except automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[c]	Y ☐	N ☐

(continued)

	(b)	Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is equipped with a gasketed cover, seal, or lid which forms a vapor-tight seal.	Y ☐	N ☐
	(c)	Each gasketed cover, seal, or lid on any opening in the EFR is closed, unless the cover or lid must be open for access.	Y ☐	N ☐
	(d)	Covers on each access hatch and gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(e)	The gasket on each cover, seal, or lid described in (b) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
7.	Inspect automatic bleeder vents.			
	(a)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(b)	Automatic bleeder vents are gasketed.	Y ☐	N ☐
	(c)	The gasket on the automatic bleeder vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
8.	Inspect rim space vents.			
	(a)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(b)	Rim space vents are gasketed.	Y ☐	N ☐
	(c)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
9.	Each roof drain is covered with a slotted membrane fabric that covers at least 90 percent of the area of the opening.		Y ☐	N ☐
10.	Each unslotted guide pole well has either a gasketed sliding cover or a flexible fabric sleeve seal.		Y ☐	N ☐
11.	Each unslotted guide pole shall have on the end of the pole a gasketed cap which is closed at all times except when gauging the liquid level or taking liquid samples.		Y ☐	N ☐

(continued)

12.	Each slotted guide pole well is equipped with the following equipment: (1) a gasketed sliding cover or a flexible fabric sleeve seal, and (2) a gasketed float inside the guide pole or other control device which closes off the liquid surface from the atmosphere.	Y ☐	N ☐
13.	Each gauge hatch/sample well has a gasketed cover which is closed (except when the hatch or well must be open for access).	Y ☐	N ☐
14.	All of the gaskets described in 10 through 13 close off the liquid surface from the atmosphere.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND AN INTERNAL FLOATING ROOF

Note: The inspector should be advised of the hazards of inspecting an internal floating roof vessel that contains a liquid hazardous air pollutant (HAP). An inspector may perform an external visual inspection of a wastewater tank at any time (i.e., the tank does not need to be taken out of service). However, the inspector will need to have proper respiratory protection before opening the roof hatch to visually inspect, from the fixed roof, the floating deck and seal. An inspector may perform the more thorough internal inspection only when the tank has been taken out of service (i.e., emptied, degassed and cleaned). Unless a vessel is taken out of service more frequently than is required by the HON, this internal inspection can only take place once every ten years, during those 30 days after which the State Agency has received notice that the tank has been emptied and degassed and will subsequently be refilled. The inspector should never enter a wastewater tank to inspect the IFR without first consulting documents that address the safety issues to consider while entering a confined space and while inspecting an IFR that contains HAP (e.g., the EPA document "Confined Space Safety Document for Conducting NESHAP Compliance Inspections of Benzene Storage Tanks.")

1. External Visual Inspection

(a)	The IFR is resting on the liquid surface of the stored material, unless the IFR is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)	The IFR is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
(c)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).		
	(1) The seal is not detached from the IFR.	Y ☐	N ☐

(continued)

	(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(3)	There are no visible gaps between the seal and the wall of the wastewater tank.	Y ☐	N ☐
2.		Internal Visual Inspection		
(a)		The IFR is resting on the liquid surface of the stored material, unless the IFR is resting on the leg supports because the tank has just been emptied and degassed or the tank is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)		The IFR is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
(c)		The IFR is equipped with one of the following closure devices, between the wall of the wastewater tank and the edge of the IFR: (1) a liquid-mounted seal, (2) a metallic shoe seal, or (3) two seals (i.e., a primary and secondary seal), each of which forms a continuous closure that completely covers the annular space between the wall of the wastewater tank and the edge of the IFR.[d]	Y ☐	N ☐
(d)		Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).		
	(1)	The seal is not detached from the IFR.	Y ☐	N ☐
	(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(3)	There are no visible gaps between the seal and the wall of the wastewater tank.	Y ☐	N ☐
(e)		Inspect deck openings.		
	(1)	If the IFR is non-contact, then each opening in the floating roof, except for automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[c]	Y ☐	N ☐
	(2)	Except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains, each opening in the IFR is equipped with a gasketed cover or lid.[e]	Y ☐	N ☐

(continued)

	(3)	Each cover or lid on any opening in the IFR is closed, unless the cover or lid is open for access.	Y □	N □
	(4)	Covers on each access hatch and automatic gauge float well are bolted or fastened so as to be air-tight when closed.	Y □	N □
	(5)	The gasket on each cover or lid described in (3) closes off the liquid surface from the atmosphere.	Y □	N □
(f)	Inspect automatic bleeder vents.			
	(1)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y □	N □
	(2)	Each automatic bleeder vent is gasketed.[e]	Y □	N □
	(3)	The gasket on each automatic bleeder vent closes off the liquid surface from the atmosphere.	Y □	N □
(g)	Inspect rim space vents.			
	(1)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y □	N □
	(2)	Rim space vents are gasketed.[e]	Y □	N □
	(3)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y □	N □
(h)	Each, sample well (i.e., each penetration of the IFR for the purpose of sampling), has a slit fabric cover that covers at least 90 percent of the opening.[e]		Y □	N □
(i)	Each penetration of the IFR that allows for passage of a ladder has a gasketed sliding cover.[e]		Y □	N □
(j)	Each penetration of the IFR that allows for passage of a column supporting the fixed roof has either a flexible fabric sleeve seal or a gasketed sliding cover.[e]		Y □	N □
(k)	The gaskets described in (i) and (j) close off the liquid surface to the atmosphere.		Y □	N □
(l)	If a flexible fabric sleeve seal is used as described in (j), the fabric sleeve is free of defects (i.e., free of holes, tears, or gaps).		Y □	N □

(continued)

B.	**SURFACE IMPOUNDMENTS**		
1.	Access hatches and all other openings are closed and gasketed when not in use.	Y ☐	N ☐
2.	All control equipment is functioning properly (e.g., seals, gaskets, joints, lids, covers, and doors are not cracked, gapped, or broken).	Y ☐	N ☐
	[Note: The inspector should also check the cover and closed-vent system for leaks in accordance with the procedures in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]		
C.	**CONTAINERS**		
1.	For containers with $0.1 \leq$ capacity $\leq 0.42\ m^3$.		
	(a) The container meets existing DOT specifications and testing requirements.	Y ☐	N ☐
	(b) The cover and all openings are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during filling).	Y ☐	N ☐
2.	For containers with capacity $>0.42\ m^3$.		
	(a) The container is equipped with a submerged fill pipe that does not extend more than 6 inches or within two fill pipe diameters of the bottom of the container while the container is being filled.	Y ☐	N ☐
	(b) The cover and all openings, except those required for the submerged fill pipe and for venting to prevent damage or deformation of the container or cover, are closed and sealed.	Y ☐	N ☐
3.	Whenever a container with capacity $\geq 0.1\ m^3$ is open, it is located within an enclosure that is routed by a closed-vent system to a control device.	Y ☐	N ☐
4.	All control equipment is functioning properly (e.g., seals, gaskets, joints, lids, covers, and doors are not cracked, gapped, or broken).	Y ☐	N ☐

(continued)

[Note: The inspector should also check the cover and closed-vent system for leaks in accordance with the procedures in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]

D. INDIVIDUAL DRAIN SYSTEMS

1. If the control equipment is a cover and a closed-vent system routed to a control device:

(a)	The individual drain system is designed and operated to segregate the vapors within the system from other drain systems and the atmosphere through means such as water seals.	Y ☐	N ☐
(b)	The cover and all openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair).	Y ☐	N ☐
(c)	All control equipment is functioning properly (e.g., seals, gaskets, joints, lids, covers, and doors are not cracked, gapped, or broken).	Y ☐	N ☐

[Note: The inspector should also check the closed-vent system for leaks in accordance with the procedures specified in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]

2. For drains and junction boxes, as an alternative to Item 1:

(a)	Each drain is equipped with either water seal controls (e.g., p-trap, s-trap) or a tightly-sealed cap or plug.	Y ☐	N ☐
(b)	There is water in the p-trap or s-trap.	Y ☐	N ☐
(c)	If a water seal is used on a drain hub receiving a Group 1 process wastewater stream, the drain pipe discharging the wastewater extends below the liquid surface in the water seal [or (d)].	Y ☐	N ☐
(d)	A flexible cap (or other enclosure which restricts wind motion) is installed that encloses the space between the drain discharging the wastewater and the drain hub receiving the wastewater.	Y ☐	N ☐

(continued)

(e)	Each junction box is equipped with a cover, and, if vented, is equipped with a vent pipe.	Y ☐	N ☐
(f)	Any vent pipe is at least 90 centimeters in length and shall not exceed 10.2 centimeters in diameter.	Y ☐	N ☐
(g)	Junction box covers have tight seals around the edge.	Y ☐	N ☐
(h)	Junction box covers are kept in place at all times except during inspection and maintenance.	Y ☐	N ☐
(i)	Each junction box is equipped with a system (e.g., water seal controls) to prevent the flow of organic HAP vapors from the vent pipe to the atmosphere during normal operation.	Y ☐	N ☐
(j)	The vent pipe is connected to a closed vent system that meets the requirements in Table 8-14 and is routed to a control device that meets the requirements in Table 8-15.	Y ☐	N ☐
(k)	Each sewer line is not open to the atmosphere and is covered or enclosed so that no visible gaps or cracks in joints, seals, or other emission interfaces exist.	Y ☐	N ☐

E. OIL-WATER SEPARATORS

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND A CLOSED VENT SYSTEM ROUTED TO A CONTROL DEVICE

1.	All openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair).	Y ☐	N ☐
2.	All control equipment is functioning properly (e.g., seals, gaskets, joints, lids, covers, and doors are not cracked, gapped, or broken).	Y ☐	N ☐

[Note: *The inspector should also check the fixed roof and closed-vent system for leaks in accordance with the procedures specified in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.*]

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

IF THE CONTROL EQUIPMENT IS A FLOATING ROOF

Note: The inspector should not perform the inspection while on the floating roof if the roof is below four feet of the top of the separator and if the inspector is not equipped with the proper respiratory protection. Based on the inspector's assessment of the availability of records documenting the design of the control equipment, an adequate inspection without respiratory protection may be performed with a combination of a record inspection and a visual inspection conducted from the platform with the aid of vision-enhancing devices (binoculars).

1.	The floating roof is resting on the liquid surface of the stored material, unless the floating roof is resting on the roof leg supports because the oil-water separator has just been emptied and degassed or the tank is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
2.	The floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
3.	There is a secondary seal installed above the primary seal.	Y ☐	N ☐
4.	Inspect the secondary seal.		
	(a) The secondary seal is continuous and completely covers the annular space between the floating roof and the separator wall.	Y ☐	N ☐
	(b) There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(c) There are no visible gaps between the seal and the wall of the oil-water separator, except as specified in (e)(1) and (e)(2).	Y ☐	N ☐
	(d) The seal is not detached from the floating deck.	Y ☐	N ☐
	(e) Perform seal gap measurement of the secondary seal as specified in §60.696(d)(1) of the standards of performance for VOC emissions.		
	(1) The total gap area between the separator wall and the secondary seal does not exceed 6.7 cm^2 per meter (0.32 in^2/ft) of the separator wall perimeter.	Y ☐	N ☐
	(2) The maximum gap width between the separator wall and the seal does not exceed 1.3 cm (0.5 in) at any point.	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

5.	Inspect the primary seal.			
	(a)	The primary seal is a liquid-mounted seal.	Y ☐	N ☐
	(b)	The primary seal forms a continuous closure that completely covers the annular space between the wall of the oil-water separator and the edge of the floating roof, except as described in (f)(1) and (f)(2).	Y ☐	N ☐
	(c)	There are no holes, tears, or other openings in the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used).	Y ☐	N ☐
	(d)	If the primary seal is a liquid-mounted seal (e.g., foam or liquid-filled seal), the seal is in contact with the liquid between the wall of the oil-water separator and the floating roof.	Y ☐	N ☐
	(e)	The seal is not detached from the floating roof.	Y ☐	N ☐
	(f)	Perform seal gap measurements of the primary seal as specified in §60.696(d)(1) of the standards of performance for VOC emissions.		
		(1) The total gap area between the separator wall and the primary seal does not exceed 67 cm^2 per meter (3.2 in^2/ft) of separator wall perimeter.	Y ☐	N ☐
		(2) The maximum gap width between the separator wall and the seal does not exceed 3.8 cm (1.5 in) at any point.	Y ☐	N ☐
6.	If the floating roof is equipped with one or more emergency roof drains for removal of stormwater, each emergency roof drain is fitted with a slotted membrane fabric cover that covers at least 90 percent of the drain opening area or a flexible fabric sleeve seal.		Y ☐	N ☐
7.	All openings in the floating roof are equipped with a gasketed cover, seal, or lid, which is maintained in a closed position at all times, except during inspection and maintenance.		Y ☐	N ☐
8.	No gaskets, joints, lids, covers, or doors are cracked, gapped, or broken.		Y ☐	N ☐

[a] PR = Periodic Report

(continued)

[b] If the external floating roof is equipped, as of December 31, 1992, with either: (1) a liquid-mounted primary seal and no secondary seal, or (2) a vapor mounted primary seal and a secondary seal, then the seal requirement of a liquid-mounted or metallic shoe primary seal and secondary seal does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) April 22, 2004. For such wastewater tanks, measurements of gaps in the primary seal must be conducted once per year until a secondary seal is installed.

[c] If these openings (excluding automatic bleeder vents and rim space vents) did not provide projections below the liquid service as of December 31, 1992, this requirement 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 April 22, 2004.

[d] If the internal floating roof is equipped, as of December 31, 1992, with a single vapor-mounted seal, then the requirement for a liquid-mounted seal or metallic shoe seal or two seals does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) April 22, 2004.

[e] If the internal floating roof did not meet these specifications as of December 15, 1992, 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 April 22, 2004.

NOTE ALL DEFICIENCIES.

TABLE 8-13. COMPLIANCE CHECKLIST FOR TREATMENT PROCESSES

Complete this form for treatment processes. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

Note: The HON does not specify a particular treatment process that must be used to achieve compliance. The source may use any waste management unit or treatment process to achieve compliance with one of the control options (or a combination of control options). If the source elects to use a design steam stripper, the HON does specify operating parameters in §63.138(g) of Subpart G. These operating parameters are included in this checklist.

TREATMENT PROCESS ____________________

DATE OF STARTUP ______________________

I. REVIEW OF RECORDS

FOR ALL TREATMENT PROCESSES

1a.	Identification and description of the treatment process, identification of the wastewater streams treated by the process, and identification of monitoring parameters were included in the NCS.[a]	Y ☐	N ☐
1b.	If a treatment process other than the design steam stripper is used, the request to monitor site-specific parameters was included in the Implementation Plan or operating permit application.	Y ☐	N ☐
2.	Documentation to establish a site-specific range was submitted in the NCS or operating permit application.	Y ☐	N ☐
3.	Results of the initial measurement of the parameters approved by the Administrator were submitted in the NCS or operating permit application.	Y ☐	N ☐
4.	Records of a design evaluation and supporting documentation that includes operating characteristics were included in the NCS [or #5].	Y ☐	N ☐
5.	Records of performance tests conducted using test methods and procedures specified in §63.145 of Subpart G were included in the NCS.	Y ☐	N ☐

(continued)

TABLE 8-13. COMPLIANCE CHECKLIST FOR TREATMENT PROCESSES

[Note: The records described in #4 and #5 are not required if the wastewater stream or residual is discharged to: (1) a hazardous waste incinerator permitted under 40 CFR Part 270 and complying with 40 CFR Part 264 Subpart O; (2) an industrial furnace or boiler burning hazardous waste that is permitted under 40 CFR Part 270 and complying with 40 CFR Part 266, Subpart H; (3) an industrial furnace or boiler burning hazardous waste for which the owner or operator has certified compliance with the interim status requirements of 40 CFR Part 266 Subpart H; or (4) an underground injection well permitted under 40 CFR Part 270 or 40 CFR Part 144 and complying with 40 CFR Part 122.]			
6.	Records described in #4 and #5 demonstrate that the level of treatment required by §63.138(b) and/or (c) is achieved.	Y ☐	N ☐
7.	Results of visual inspections, in which a control equipment failure was identified, were reported in the PR[b], including:		
	(a) Identification of the treatment process,	Y ☐	N ☐
	(b) Description of the failure,	Y ☐	N ☐
	(c) Description of the nature of the repair, and	Y ☐	N ☐
	(d) Date the repair was made.	Y ☐	N ☐
8.	For each parameter approved by the permitting authority that is required to be monitored continuously:		
	(a) Records of the daily average value of the parameter are kept.	Y ☐	N ☐
	(b) Each operating day, when the daily average value of the parameter was outside the site-specific range established in the NCS (i.e., a monitoring parameter excursion is detected), or when insufficient monitoring data are collected, they are reported in the PR.	Y ☐	N ☐
9.	For each treatment process that receives a residual removed from a Group 1 wastewater stream, the following were submitted in the NCS:		
	(a) Identification of treatment process;	Y ☐	N ☐
	(b) Identification and description of the residual;	Y ☐	N ☐
	(c) Identification of wastewater stream from which residual was removed;	Y ☐	N ☐

(continued)

TABLE 8-13. COMPLIANCE CHECKLIST FOR TREATMENT PROCESSES

	(d) Fate of residual;	Y ☐	N ☐
	(e) Identification and description of control device (if any) used to destroy the HAP mass in the residual by 99 percent; and	Y ☐	N ☐
	(f) Documentation of the 99 percent control efficiency of the device in (e).	Y ☐	N ☐
10.	Records show that residuals are in compliance with control options in §63.138(h) of Subpart G.	Y ☐	N ☐
FOR DESIGN STEAM STRIPPERS			
1.	Records are kept of the steam flow rate, wastewater feed mass flow rate, and wastewater feed temperature.	Y ☐	N ☐
2.	If the parameters in #1 are not monitored, the facility has documentation that they applied for and received approval to monitor alternative parameter(s) and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #2 is checked "Yes", the facility is in compliance even if number 1 is checked "No".]		
FOR BIOLOGICAL TREATMENT UNITS			
1.	Records are kept of appropriate monitoring parameters that were approved by the permitting authority.	Y ☐	N ☐
2.	Records are kept of the bench-scale or pilot-scale test using Method 304 (or any other method approved by the EPA) in conjunction with a wastewater model (e.g., WATER7, BASTE, TOXCHEM, or any other model validated by Method 301).	Y ☐	N ☐
II.	VISUAL INSPECTION		
FOR ALL TREATMENT PROCESSES			
1.	Each opening in the treatment process (except biological treatment systems) is covered and vented to a closed-vent system that is routed to a control device.	Y ☐	N ☐
2.	Any associated closed-vent system is in compliance with the HON according to the checklist in Table 8-14.	Y ☐	N ☐

(continued)

TABLE 8-13. COMPLIANCE CHECKLIST FOR TREATMENT PROCESSES

3.	Any associated control device is in compliance with the HON according to the checklist in Table 8-15.	Y ☐	N ☐
4.	Each cover is kept closed and is in compliance with the HON according to the checklist in Table 8-14.	Y ☐	N ☐
FOR DESIGN STEAM STRIPPERS			
1.	The minimum active column height is at least 5 meters.	Y ☐	N ☐
2.	The countercurrent flow configuration has a minimum of 10 actual trays.	Y ☐	N ☐
3.	The minimum steam flow rate is 0.04 kilograms of steam per liter of wastewater feed.	Y ☐	N ☐
4.	The minimum wastewater feed temperature to the steam stripper is 95 ^{o}C.	Y ☐	N ☐
5.	The maximum liquid loading is 67,100 liters per hour per square meter.	Y ☐	N ☐
6.	The minimum steam quality is 2,765 kiloJoules per kilogram.	Y ☐	N ☐
7.	Associated waste management units, closed-vent systems, and control devices meet the requirements in Tables 8-12, 8-14, and 8-15.	Y ☐	N ☐
FOR BIOLOGICAL TREATMENT UNITS			
	The treatment process is in compliance with all visual inspection parameters approved by the permitting authority and/or specified in the operating permit.	Y ☐	N ☐

[a] NCS = Notification of Compliance Status.

[b] PR = Periodic Report.

NOTE ALL DEFICIENCIES

TABLE 8-14. COMPLIANCE CHECKLIST FOR CONTROL EQUIPMENT REQUIRING LEAK DETECTION[a,b]

Complete this form for closed-vent systems. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

CONTROL OR RECOVERY DEVICE ______________

DATE OF STARTUP ______________________

I. REVIEW OF RECORDS

IF THE CONTROL EQUIPMENT IS A VAPOR-COLLECTION SYSTEM, CLOSED-VENT SYSTEM, COVER, ENCLOSURE, OR FIXED ROOF

1.	Records are kept of all parts of any vapor-collection system, closed-vent system, fixed roof, cover, or enclosure that are designated as either unsafe-to-inspect or difficult-to-inspect.	Y ☐	N ☐
2.	For equipment that is designated as difficult to inspect, a written plan is kept that requires inspection of equipment at least once every five years.	Y ☐	N ☐
3.	For equipment that is designated as unsafe to inspect, a written plan is kept that requires inspection of equipment as frequently as practicable.	Y ☐	N ☐
4.	For each inspection during which a leak was detected, the following information is recorded and reported.[c]		
(a)	Instrument identification numbers, operator name or initials, and equipment identification information;	Y ☐	N ☐
(b)	The date the leak was detected and the date of the first attempt to repair it;	Y ☐	N ☐
(c)	Maximum instrument reading after the leak is repaired or determined to be non-repairable;	Y ☐	N ☐
(d)	Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered;	Y ☐	N ☐
(e)	Name or initials of person who decides repairs cannot be made without a shutdown;	Y ☐	N ☐

(continued)

TABLE 8-14. COMPLIANCE CHECKLIST FOR CONTROL EQUIPMENT REQUIRING LEAK DETECTION

	(f)	Expected date of successful repair if not repaired within 15 days;	Y ☐	N ☐
	(g)	Dates of shutdowns that occur while the equipment is unrepaired; and	Y ☐	N ☐
	(h)	Date of successful repair of the leak.	Y ☐	N ☐
5.	For each inspection during which no leaks were detected, the following records are kept:			
	(a)	Record that the inspection was performed;	Y ☐	N ☐
	(b)	Date of the inspection; and	Y ☐	N ☐
	(c)	Statement that no leaks were found.	Y ☐	N ☐
IF THE CONTROL EQUIPMENT IS A VAPOR COLLECTION SYSTEM OR CLOSED-VENT SYSTEM				
1.	Hourly records are kept of whether the flow indicator in the bypass line was operating and whether flow was detected at any time during the hour, when seal mechanisms are not used <u>and</u>		Y ☐	N ☐
2.	The time and duration of all periods when flow is diverted or the monitor is not operating are reported[c] when seal mechanisms are not used [<u>or</u> #3 and #4]		Y ☐	N ☐
3.	Records of monthly visual inspections are kept when seal mechanisms are used <u>and</u>		Y ☐	N ☐
4.	All periods when the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out are recorded and reported[c] when seal mechanisms are used.		Y ☐	N ☐
	[Note: In order to be in compliance with provisions for bypass lines, either: #1 and #2 must both be checked "yes" or both #3 and #4 must be checked "yes".]			
II.	VISUAL INSPECTION			
	Visual inspection of the facility is consistent with written records.		Y ☐	N ☐

(continued)

TABLE 8-14. COMPLIANCE CHECKLIST FOR CONTROL EQUIPMENT REQUIRING LEAK DETECTION

IF THE CONTROL EQUIPMENT IS A VAPOR-COLLECTION SYSTEM OR CLOSED-VENT SYSTEM		
A flow indicator is present at the entrance to any bypass line that could divert the vent stream flow away from the control device to the atmosphere <u>or</u> all bypass line valves are sealed in a closed position (e.g., with a car seal or lock-and-key configuration).	Y ☐	N ☐

[a] This checklist is not applicable to closed-vent systems that are subject to §63.172 in the negotiated rule for equipment leaks (40 CFR Part 63 Subpart H) because such closed-vent systems are exempt from the requirements in §63.148 of Subpart G of the HON.

[b] This checklist is not applicable to vapor-collection systems, closed-vent systems, covers, enclosures, and fixed roofs that are operated and maintained under negative pressure.

[c] Information is submitted as part of the reports required by §63.182(b) of Subpart H.

NOTE ALL DEFICIENCIES

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

Complete this form for wastewater control devices. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance with the standard except where noted.

CONTROL OR RECOVERY DEVICE _______________

DATE OF STARTUP ________________________

I. REVIEW OF RECORDS

IF THE CONTROL DEVICE IS A FLARE

1.	Results of the initial test were submitted in the NCS.[a]	Y ☐	N ☐
2.	The presence of a continuous flare pilot flame is monitored using a device designed to detect the presence of a flame.	Y ☐	N ☐
3.	All periods when all pilot flames to a flare were absent or the monitor was not operating have been recorded and reported in the PR.[b]	Y ☐	N ☐
4.	If the presence of a continuous flare pilot flame is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with questions [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

IF THE CONTROL DEVICE IS A THERMAL INCINERATOR

1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

3.	A temperature monitoring device equipped with a continuous recorder is used to measure the temperature of the gas stream in the firebox (or in the ductwork immediately downstream of the firebox before any substantial heat exchange occurs).	Y ☐	N ☐
4.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[c] of firebox temperature are kept.	Y ☐	N ☐
6.	Records of daily average firebox temperature are kept.	Y ☐	N ☐
7.	All daily average firebox temperatures that are outside the site-specific established range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐
9.	If the firebox temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with questions [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #9(a) is checked "Yes", <u>or</u> 9(b), 9(c), and 9(d) are checked "Yes", the facility is in compliance even if numbers 3 through 8 are checked "No".]		
	IF THE CONTROL DEVICE IS A CATALYTIC INCINERATOR		
1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

2.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
3.	Temperature monitoring devices equipped with continuous recorders are used to measure the temperature in the gas stream immediately before and after the catalyst bed.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the gas stream temperature upstream of the catalyst bed and the temperature difference across the bed was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[c] are kept of the temperature of the gas stream upstream of the catalyst bed and the temperature difference across the catalyst bed.	Y ☐	N ☐
6.	Records of the daily average temperature upstream of the catalyst bed and the temperature difference across the catalyst bed are kept.	Y ☐	N ☐
7.	All daily average upstream temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	All daily average temperature differences across the catalyst bed that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
9.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐
10.	If the temperature upstream of the catalyst bed and/or the temperature differential across the catalyst bed are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with questions [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

(d)	All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #10(a) is checked "Yes", or 10(b), 10(c), and 10(d) are checked "Yes", the facility is in compliance even if numbers 3 through 9 are checked "No".]		
	IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY LESS THAN 44 MEGAWATTS AND THE VENT STREAM IS NOT INTRODUCED WITH THE PRIMARY FUEL		
1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
3.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
4.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
5.	A temperature monitoring device equipped with a continuous monitor is used to measure the temperature of the gas stream in the firebox.	Y ☐	N ☐
6.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
7.	Continuous records[c] are kept of the firebox temperature.	Y ☐	N ☐
8.	Records of the daily average firebox temperature are kept.	Y ☐	N ☐
9.	All daily average firebox temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

11.	If the firebox temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with questions [(b) and (c) and (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #11(a) is checked "Yes", or 11(b), 11(c), and 11(d) are checked "Yes", the facility is in compliance even if numbers 5 through 10 are checked "No".]		
IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY GREATER THAN 44 MEGAWATTS			
1.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
2.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
IF THE CONTROL DEVICE IS A REGENERATIVE CARBON ADSORBER			
1a.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
1b.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

2.	An integrating regeneration stream (e.g., steam) flow monitoring device having an accuracy of ± 10 percent and capable of recording total regeneration stream mass flow for each regeneration cycle is used to measure regeneration stream flow.	Y ☐	N ☐
3.	A carbon bed temperature monitoring device capable of recording the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle is used to measure carbon bed regeneration temperature.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the regeneration stream flow and carbon bed regeneration temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
5.	Records are kept of the total regeneration stream mass flow for each carbon bed regeneration cycle.	Y ☐	N ☐
6.	Records are kept of the temperature of the carbon bed after each carbon bed regeneration.	Y ☐	N ☐
7.	All regeneration cycles when the total regeneration stream mass flow is outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
8.	All regeneration cycles during which the temperature of the carbon bed after regeneration is outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
9.	If the regeneration stream flow and/or the carbon bed regeneration temperature are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with questions [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

[Note: If #9(a) is checked "Yes", or 9(b), 9(c), and 9(d) are checked "Yes", the facility is in compliance even if numbers 2 through 8 are checked "No".]

IF THE CONTROL DEVICE IS A CONDENSER

1a.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
1b.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
2.	A temperature monitoring device equipped with a continuous recorder is used to measure the product side exit temperature.	Y ☐	N ☐
3.	Documentation to establish a site-specific range for the exit temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
4.	Records of the daily average exit temperature are kept.	Y ☐	N ☐
5.	Continuous records[c] of the exit temperature are kept.	Y ☐	N ☐
6.	All product side daily average exit temperatures that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
7.	If the exit temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with questions [(b) and (c) and (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

[Note: If #7(a) is checked "Yes", or 7(b), 7(c), and 7(d) are checked "Yes", the facility is in compliance even if numbers 2 through 6 are checked "No".]

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

II.	**VISUAL INSPECTION**		
1.	For flares, a device for detecting the flame is present.	Y ☐	N ☐
2.	For all incinerators, and for boilers and process heaters with design heat input capacities less than 44 megawatts and the vent steam is not introduced with the primary fuel, a temperature monitoring device is present.	Y ☐	N ☐
3.	For carbon adsorbers, a device for measuring carbon bed temperature and a device for measuring regeneration stream flow are present.	Y ☐	N ☐
4.	For condensers, a temperature monitoring device is present.	Y ☐	N ☐
5.	Visual inspection of the facility is consistent with written records.	Y ☐	N ☐

[a] NCS = Notification of Compliance Status.

[b] PR = Periodic Reports.

[c] Continuous records, as defined in §63.111, means documentation, either in computer readable form or hard copy, or data values measured at least once every 15 minutes and recorded at the frequency specified in §63.152(f). Section 63.152(f) allows the owner to record either values measured every 15 minutes or 15-minute (or shorter period) block average values calculated from all measured values during each period. If the daily average value of a monitored value for a given parameter is within the range established in the NCS, the owner or operator may retain block hourly averages instead of the 15-minute values. An owner or operator may request approval to use alternatives to continuous monitoring under §63.151(g) of Subpart G.

[d] The number of excused excursions is as follows:

For the first semi-annual period after the NCS is due - 6 excursions;
For the second semi-annual period - 5 excursions;
For the third semi-annual period - 4 excursions;
For the fourth semi-annual period - 3 excursions;
For the fifth semi-annual period - 2 excursions;
For the sixth and all subsequent semi-annual periods - 1 excursion.

An excursion occurs when: (1) the daily average value of the monitored parameter is outside the range established in the NCS or operating permit; or (2) if monitoring data are insufficient. In order to have sufficient data, a source must have measured values for each 15-minute period within each hour for at least 75 percent of the hours the control device is operating in a day. For example, if a control device operates 24 hours per day, data must be available for all 15-minute periods in at least 18 hours; but up to 6 hours may have incomplete data. If more than 6 hours have incomplete data, an excursion has occurred. For control devices that operate less than 4 hours a day, one hour of incomplete data is allowed.

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

NOTE ALL DEFICIENCIES

TABLE 8-16. COMPLIANCE CHECKLIST FOR HEAT EXCHANGE SYSTEMS REQUIRING LEAK DETECTION

Complete this form for closed-vent systems. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

HEAT EXCHANGE SYSTEM ____________________

DATE OF STARTUP ____________________

Note: Sources are not required to comply with leak detection monitoring requirements if either: (1) the heat exchange system is operated with the minimum pressure on the cooling water side at least 35 kilopascals greater than the maximum pressure on the process side; or (2) the once-through heat exchange system has an NPDES permit with an allowable discharge limit of less than 1 ppm.

I.	**REVIEW OF RECORDS**		
1a.	For once-through heat exchange systems, records indicate that systems are monitored for leaks of HAPs listed on Table 9 of Subpart G.	Y ☐	N ☐
1b.	For recirculating heat exchange systems, records indicate that systems are monitored for leaks of HAPs listed on Table 2 of Subpart F, except for benzotrichloride (98077), bis(chloromethyl)ether (542881), maleic anhydride (108316), and methyl isocyanate (624839).	Y ☐	N ☐
2.	If there is a delay of repair of a leak, the following information was reported in the PR[a] and maintained as a record.		
	(a) Identification of the leak and date the leak was detected.	Y ☐	N ☐
	(b) Whether or not the leak has been repaired.	Y ☐	N ☐
	(c) Reason for delay of repair.	Y ☐	N ☐
	(d) The expected date of repair if the leak remains unrepaired.	Y ☐	N ☐
	(e) The date of repair, if the leak is repaired.	Y ☐	N ☐
II.	**VISUAL INSPECTION**		
	Visual inspection of the facility is consistent with written records.	Y ☐	N ☐

[a] PR = Periodic Reports.

(continued)

TABLE 8-16. COMPLIANCE CHECKLIST FOR HEAT EXCHANGE SYSTEMS REQUIRING LEAK DETECTION

NOTE ALL DEFICIENCIES

TABLE 8-17. COMPLIANCE CHECKLIST FOR MAINTENANCE WASTEWATER MANAGEMENT

Complete this form for maintenance wastewater management activities. A "yes" to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

MAINTENANCE WASTEWATER STREAM ________

DATE OF STARTUP ________________________

I. REVIEW OF RECORDS

1. Records are kept of the procedures for managing maintenance wastewater as part of the startup, shutdown, and malfunction plan. Y ☐ N ☐

2. The maintenance procedures specify the following items:

   (a) The process equipment and/or maintenance tasks that are expected to create wastewater during maintenance activities. Y ☐ N ☐

   (b) The procedure for properly managing the wastewater and controlling HAP emissions to the atmosphere. Y ☐ N ☐

   (c) The procedures for clearing materials from process equipment. Y ☐ N ☐

II. VISUAL INSPECTION

All maintenance wastewater streams are being managed in accordance with the procedures specified in the start-up, shutdown, and malfunction plan. Y ☐ N ☐

NOTE ALL DEFICIENCIES

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APPENDIX A - CODE OF FEDERAL REGULATIONS CITATIONS

Hazardous Organic NESHAP

40 CFR 63 Subpart F - National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry.

40 CFR 63 Subpart G - National Emission Standards for Organic Hazardous Air Pollutants from Synthetic Organic Chemical Manufacturing Industry Process Vents, Storage Vessels, Transfer Operations, and Wastewater.

40 CFR 63 Subpart H - National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.

II. NESHAP General Provisions

40 CFR 63 Subpart A - General Provisions.

III. NSPS for SOCMI Process Vents

40 CFR 60 Subpart III - Standards of Performance for Volatile Organic Compound Emissions from the Synthetic Organic Chemical Manufacturing Industry Air Oxidation Processes.

40 CFR 60 Subpart NNN - Standards of Performance for Volatile Organic Compounds Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations.

40 CFR 60 Subpart RRR - Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes.

IV. Test Methods

40 CFR 60 Appendix A, Method 1 - Sample and velocity traverses for stationary sources.

40 CFR 60 Appendix A, Method 1A - Sample and velocity traverses for stationary sources with small stacks or ducts.

40 CFR 60 Appendix A, Method 2 - Determination of stack gas velocity and volumetric flow rate (Type S pitot tube).

40 CFR 60 Appendix A, Method 2A - Direct measurement of gas volume through pipes and small ducts.

40 CFR 60 Appendix A, Method 2C - Determination of stack gas velocity and volumetric flow rate in small stacks or ducts (standard pitot tube).

40 CFR 60 Appendix A, Method 2D - Measurement of gas volumetric flow rates in small pipes and ducts.

40 CFR 60 Appendix A, Method 3B - Gas analysis for the determination of emission rate correction factor or excess air.

40 CFR 60 Appendix A, Method 4 - Determination of moisture content in stack gases.

40 CFR 60 Appendix A, Method 18 - Measurement of gaseous organic compound emissions by gas chromatography.

40 CFR 60 Appendix A, Method 21 - Determination of volatile organic compounds leaks.

40 CFR 60 Appendix A, Method 25A - Determination of total gaseous organic concentration using a flame ionization analyzer.

40 CFR 60 Appendix A, Method 25D - Determination of total gaseous organic concentration using purge apparatus.

40 CFR 60 Appendix A, Method 26 - Determination of hydrogen halide and halogen emissions from stationary sources - midget impinger method.

40 CFR 60 Appendix A, Method 26A - Determination of hydrogen halide and halogen emissions from stationary sources - Isokinetic method.

40 CFR 63 Appendix A, Method 301 - Field validation of emission concentrations from stationary sources.

40 CFR 63 Appendix A, Method 304A - Determination of biodegradation rates of organic compounds (vent option).

40 CFR 63 Appendix A, Method 304B - Determination of biodegradation rates of organic compounds (scrubber option).

40 CFR 63 Appendix A, Method 305 - Measurement of emission potential of individual volatile organic compounds in waste.

V. Procedures

40 CFR 63 Appendix C - Determination of the fraction biodegraded (F_{bio}) in a biological treatment unit.

APPENDIX B - COMPARISON OF HON PROCESS VENT PROVISIONS WITH DISTILLATION, AIR OXIDATION, AND REACTORS NSPS

This Appendix summarizes the major differences between the HON process vent provisions and the SOCMI distillation, air oxidation, and reactors NSPS (40 CFR 60, Subparts NNN, III, and RRR, respectively). The comparison is organized into the following sections: applicability; control techniques; performance testing; monitoring; and recordkeeping and reporting.

Applicability

- The three NSPS apply only to new sources. A new distillation facility is defined as a facility for which construction, modification, or reconstruction commenced after December 30, 1983. A new air oxidation facility is defined as a facility for which construction, modification, or reconstruction commenced after October 21, 1983. The date for reactors is June 29, 1990.

- The NSPS apply to VOC's, while the HON applies to HAP's.

- The SOCMI chemical lists for the HON and the distillation, air oxidation, and reactor NSPS are different. The SOCMI list for the distillation, air oxidation, and NSPS can be found in 40 CFR §60.667, §60.617, and §60.707, respectively.

- The definition of a halogenated vent stream in the HON is any vent stream from a process vent or transfer operation determined to have a mass emission rate of halogen atoms contained in organic compounds of 0.45 kilograms per hour or greater. The NSPS define a halogenated vent stream as one containing a total concentration of halogen compounds of 20 ppmv or greater.

- The TRE equations and coefficients are different for the HON and the NSPS. The coefficients in the NSPS are selected based on the flow rate, heat content, and halogen status of the vent stream. The coefficients in the HON are based on the halogen status of the vent stream and whether the facility is new or existing. The NSPS have separate equations for incinerators and flares. The TRE equations and coefficients for the air oxidation NSPS are located in 40 CFR §60.614(e), and the TRE equations and coefficients for the distillation and reactors NSPS are located in 40 CFR §60.664(e), and §60.704, respectively.

- The NSPS do not use the terms Group 1 and Group 2. However, the NSPS have similar applicability criteria to HON, because they only require control of streams with TRE index values less than or equal to 1.0. The distillation NSPS has a low flow cutoff. The reactors NSPS includes low flow and low concentration cutoffs.

Control Techniques

- In the NSPS, a scrubber is not required downstream of an incinerator that is used to combust halogenated vent streams (the NSPS only apply to VOC).

- The NSPS do not prohibit the use of flares for control of halogenated vent streams.
- There are no emissions averaging provisions in the NSPS.

Performance Testing

- The HON allows methods other than Method 18 to determine the concentration in the vent stream when complying with the 98 percent reduction or 20 ppmv outlet concentration requirements, or for purposes of calculating the TRE index value as long as the method has been validated by Method 301. The NSPS only specify Method 18.
- The distillation and air oxidation NSPS require Method 3 for measurement of percent oxygen when determining compliance with the 20 ppmv concentration limit. The reactors NSPS and the HON specify Method 3B.
- The HON and the reactors NSPS do not require an initial performance test for boilers or process heaters when the vent stream is introduced with the primary fuel or for permitted hazardous waste boilers. The distillation and air oxidation NSPS do not contain these exclusions.
- The NSPS do not allow the determination of TRE index value parameters by engineering assessment. The HON provisions allow the determination of TRE index value parameters by engineering assessment if the TRE index value is greater than 4.0.
- There are no initial tests required for scrubbers in the NSPS, because there are no scrubber provisions in the NSPS.
- The distillation and reactors NSPS require a performance test for all process vents with a TRE index value less than or equal to 8.0. The air oxidation NSPS and the HON require a test for all process vents with a TRE index value less than or equal to 4.0.

Monitoring

- The distillation and air oxidation NSPS do not exempt boilers or process heaters where the vent stream is introduced with the primary fuel from the monitoring requirements. The HON and the reactors NSPS contain these exemptions. The HON also exempts permitted hazardous waste boilers from monitoring, unlike the NSPS.
- The distillation and air oxidation NSPS require monitoring of operation for boilers or process heaters with design heat input capacities of 44 megawatts or greater. The HON and the reactors NSPS do not require any monitoring of such boilers.
- The distillation and reactors NSPS require monitoring for all process vent streams with a TRE index value less than or equal to 8.0. The air oxidation NSPS, like the HON, requires monitoring for all process vent streams with a TRE index value less than or equal to 4.0.

Recordkeeping and Reporting of Monitored Parameters

- The NSPS require semiannual reporting of monitored parameters that are outside the established range, but the out-of-range periods described in these reports are not considered violations. The facility may be required to repeat the performance test, and if the test shows that the facility is no longer in compliance, enforcement action could be taken. However, violations and penalties cannot be invoked based soley on monitored parameters being out of the established range. In contrast, the HON provisions specify that if parameters are out of range for a longer period of time than the excused excursion period, this is a direct violation of the permit operating requirements and enforcement actions can be taken.

- The NSPS require three hour averaging periods for records and reports of monitored data. The HON requires daily averaging periods (24 hour).

- The NSPS require performance tests to establish ranges of monitored parameters. The NSPS specifically define exceedances of monitored parameters which include limits above and/or below the performance test value of the parameter. For example, an exceedance for incinerators includes all 3 hour periods of operation during which the average combustion temperature was more than 28 ^{o}C below the value measured during the performance test. In contrast, the HON does not contain specific definitions of acceptable ranges or exceedances. The HON requires sources to establish site specific ranges based on testing supplemented by engineering analyses.

- The distillation and air oxidation NSPS require records of operation for boilers or process heaters with design heat input capacities of 44 megawatts or greater to be kept. These records may include steam use, fuel use, or data monitored to comply with another regulation. For the distillation and air oxidation NSPS, all periods when a boiler or process heater is not in operation must be reported in the semiannual report.

- The initial semiannual report is due within 6 months of the initial start-up date in order to comply with the NSPS. The HON requires the first semiannual report to be submitted no later than 8 months after the compliance date.

- The NSPS require that all records of monitored data be kept for 2 years. The HON requires that records be kept for 5 years.

Recordkeeping and Reporting - Initial Reports and Notifications

- The HON requires an Implementation Plan to report the compliance option that will be used and a Notification of Compliance Status to report the results of the initial performance test. The NSPS require a notification of initial start-up and an initial performance test report.

- The NSPS require the results of the performance test to be submitted within 60 days of achieving the maximum production rate, but no later than 180 days after start-up. The HON requires the Notification of Compliance Status, which includes the results of the performance test, to be submitted 150 days after the source's compliance date.

- The NSPS require notification of the Administrator no later than 30 days after an affected facility is constructed or reconstructed. The Administrator must also be notified no later than 30 days prior to the initial start-up and no later than 15 days after the actual start-up of an affected facility. The HON (§63.151 of Subpart G) requires an initial notification which is due 120 days after the date of promulgation for existing sources. For new sources, the initial notification is due as soon as practicable before commencement of construction or reconstruction, or 90 days after promulgation, whichever is later. Additional notification requirements for new sources subject to the HON (such as applications for approval of construction or reconstruction and notifications of start-up) are contained in the NESHAP General Provisions (40 CFR 63, Subpart A).

- The distillation NSPS requires an initial report of the design production capacity of the process unit. The reactors NSPS requires a design capacity report for process units that are exempt from control requirements because they are below the 1 Gg/year capacity cutoff.

- When making a process change, the NSPS require a report of the compliance option to be used 90 days before the change is made if the compliance option will change.

- When making a process change, the NSPS require a performance test to be done within 180 days of the change.

APPENDIX C - EXAMPLE CALCULATION OF TRE INDEX VALUE

This Appendix summarizes the steps for calculating the TRE index value for a process vent stream and presents an example TRE index value calculation. Detailed requirements for calculating the TRE index value for a process vent stream are presented in §63.115(d) in Subpart G of the proposed HON rule.

The equation for calculating the TRE index value for a vent stream controlled by a flare or incinerator is as follows:

$$TRE = \frac{1}{E_{HAP}} \left[a + b\,(Q_s) + c\,(H_T) + d\,(E_{TOC})\right] \qquad (1)$$

where:

TRE	=	TRE index value.
E_{HAP}	=	Hourly emission rate of total organic HAP (kilogram per hour).
Q_S	=	Vent stream flow rate (standard cubic meters per minute) at a standard temperature of 20 ^oC.
H_T	=	Vent stream net heating value (megaJoules per standard cubic meter).
E_{TOC}	=	Hourly emission rate of TOC (kilograms per hour minus methane and ethane).
a,b,c,d	=	Coefficients for existing and new source process vents presented in Tables 1 and 2.

Engineering assessment may be used to determine the total organic HAP emission rate, the volumetric flow rate, the net heating value, and the TOC emission rate for the representative operating condition expected to yield the lowest TRE index value. Engineering assessment includes, but is not limited to:

- Previous test results;
- Bench-scale or pilot-scale test data;
- Permit values; and
- Design analysis.

If the calculated TRE index value is greater than 4.0, the owner or operator is not required to perform any measurements. If the calculated TRE index value is less than or equal to 4.0,

TABLE 1. COEFFICIENTS FOR TOTAL RESOURCE EFFECTIVENESS FOR EXISTING SOURCE NONHALOGENATED AND HALOGENATED VENT STREAMS

		Values of Coefficients			
Type of Stream	Control Device Basis	a	b	c	d
Nonhalogenated	Flare	1.935	3.660×10^{-1}	-7.687×10^{-3}	-7.333×10^{-4}
	Thermal Incinerator 0 Percent Heat Recovery	1.492	6.267×10^{-2}	3.177×10^{-2}	-1.159×10^{-3}
	Thermal Incinerator 70 Percent Heat Recovery	2.519	1.183×10^{-2}	1.300×10^{-2}	4.790×10^{-2}
Halogenated	Thermal Incinerator and Scrubber	3.995	5.200×10^{-2}	-1.769×10^{-3}	9.700×10^{-4}

TABLE 2. COEFFICIENTS FOR TOTAL RESOURCE EFFECTIVENESS FOR NEW SOURCE NONHALOGENATED AND HALOGENATED VENT STREAMS

		Values of Coefficients			
Type of Stream	Control Device Basis	a	b	c	d
Nonhalogenated	Flare	0.5276	0.0998	-2.096×10^{-3}	-2.000×10^{-4}
	Thermal Incinerator 0 Percent Heat Recovery	0.4068	0.0171	8.664×10^{-3}	-3.162×10^{-4}
	Thermal Incinerator 70 Percent Heat Recovery	0.6868	3.209×10^{-3}	3.546×10^{-3}	1.306×10^{-2}
Halogenated	Thermal Incinerator and Scrubber	1.0895	1.417×10^{-2}	-4.822×10^{-4}	2.645×10^{-4}

measurements and/or further calculations of the volumetric flow rate, the net heating value, and the TOC and total organic HAP emission rates must be performed. The volumetric flow rate shall be determined using Method 2, 2A,2C, or 2D. The molar composition, which is used to calculate net heating value, shall be determined using the following methods:

- Method 18 to measure the concentration of each organic compound;
- ASTM Method D1946-77 to measure the carbon monoxide and hydrogen concentration; and
- Method 4 to determine the water vapor content.

The net heating value shall be calculated using the following equation:

$$H_T = K_1 \left[\sum_{j=1}^{n} Cj\ Hj \right] (1 - Bws) \qquad (2)$$

where:

H_T = Net heating value of the sample (megaJoule per standard cubic meter).

K_1 = Constant, 1.740×10^{-7} (parts per million)-1 (gram-mole per standard cubic meter) (megaJoule per kilocalorie).

Bws = Water vapor content of the vent stream, proportion by volume.

Cj = Concentration on a dry basis of all organic compounds j (parts per million).

Hj = Net heat of combustion of compound j (kilocalorie per gram-mole).

The emission rate of TOC and the emission rate of total organic HAP shall both be calculated using the following equation:

$$E = K_2 \left[\sum_{j=1}^{n} Cj\ Mj \right] Qs \qquad (3)$$

where:

E = Emission rate of TOC or total organic HAP in the sample (kilograms per hour).

K_2 = Constant, 2.494×10^{-6} (parts per million)$^{-1}$ (gram-mole per standard cubic meter) (kilogram/gram) (minutes/hour).

Cj = Concentration on a dry basis of organic compound j (parts per million).

Mj = Molecular weight of organic compound j (gram/gram-mole).

Q_s = Vent stream flow rate (dry standard cubic meter per minute) at a temperature of 20 ^{o}C.

For nonhalogenated vent steams, the TRE index value must be calculated using the coefficients for a flare, a thermal incinerator with zero percent heat recovery, and a thermal incinerator with 70 percent heat recovery. The lowest TRE index value must be selected. For halogenated vent streams, the TRE index value must be calculated using the coefficients for a thermal incinerator with zero percent heat recovery followed by a scrubber.

Example

- Existing source.
- Process knowledge was used to determine that the vent stream is nonhalogenated.
- Engineering assessment was used to determine that flow rate = 1.66 scmm.
- The process vent stream contains xylene as the only organic compound.

The TOC and HAP emission rates are determined using equation 3 as follows:

- The molecular weight of xylene = 106 g/gmol.
- Engineering assessment was used to determine that the TOC concentration in the vent stream is 3000 ppm and, because xylene is a HAP, the HAP concentration is also 3000 ppm.

$$E_{TOC}\ (kg/hr) = (2.494 \times 10^{-6})\ (3000)\ (106)\ (1.66)$$
$$= 1.32\ kg/hr$$
$$E_{HAP}\ (kg/hr) = (2.494 \times 10^{-6})\ (3000)\ (106)\ (1.66)$$
$$= 1.32\ kg/hr$$

The heating value is calculated using equation 2 as follows:

- The net heat of combustion of xylene is 666.2 kcal/gmol.
- The water vapor content of the vent stream is 1 percent by volume (assumed).
- The total organic compound concentration is used (3000 ppm).

$$H_T \text{ (MJ/scm)} = (1.740 \times 10^{-7}) \left[(3000)\ (666.2)\right] (1 - 0.01) \tag{4}$$
$$= 0.344 \text{ MJ/scm}$$

The TRE index value calculation must be performed using equation 1 and the coefficients for existing, nonhalogenated vent streams presented in Table 1 for a flare, a thermal incinerator with zero percent heat recovery, and a thermal incinerator with 70 percent heat recovery.

Flare Calculation:

$$TRE = \frac{1}{1.32} \left[1.935 + 0.3660\ (1.66) - 0.007687\ (0.344) - 0.0007333\ (1.32) \right] \tag{5}$$

$$= 1.92$$

Similar calculations done for thermal incinerators with zero percent and 70 percent heat recovery yield the following results:

Zero percent heat recovery, TRE = 1.22

Seventy percent heat recovery, TRE = 1.97

Therefore, the TRE index value = 1.22 (The lowest of the three values must be selected.)

Since the TRE index value is less than 4.0, tests must be performed to determine the volumetric flow rate and the molar composition, including the concentration of each organic compound, the concentration of carbon monoxide and hydrogen, and the water vapor content.

APPENDIX D - LOGIC FLOW DIAGRAMS FOR WASTEWATER PROVISIONS

This appendix contains the logic flow diagrams for wastewater referred to in §63.131 of Subpart G of the HON. These diagrams were included in the rule to provide guidance on the interrelationship of the wastewater provisions. The following figures are included:

[a] Figure numbers are identical to those in Subpart G of the HON.

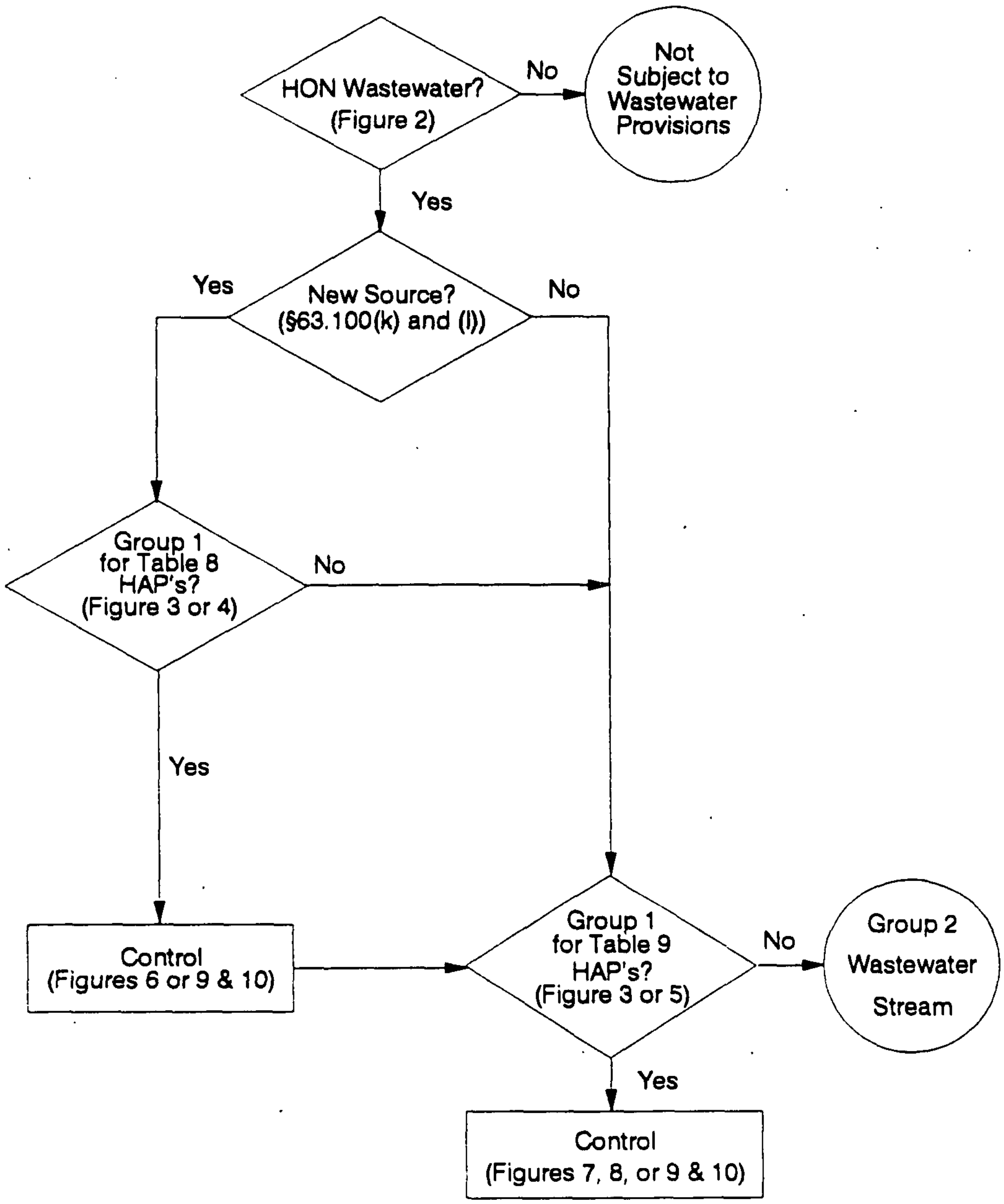
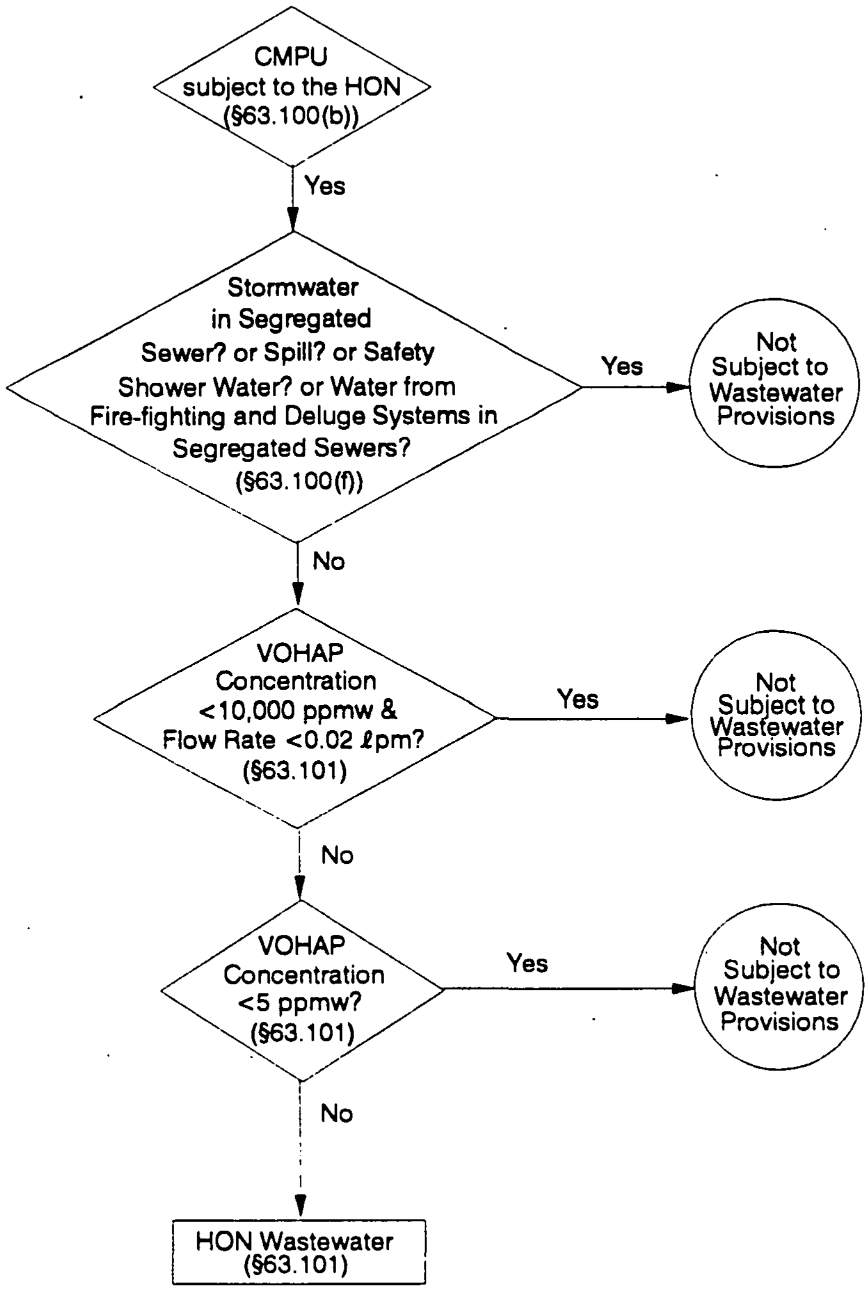


Figure 1. Overview of HON Wastewater Provisions

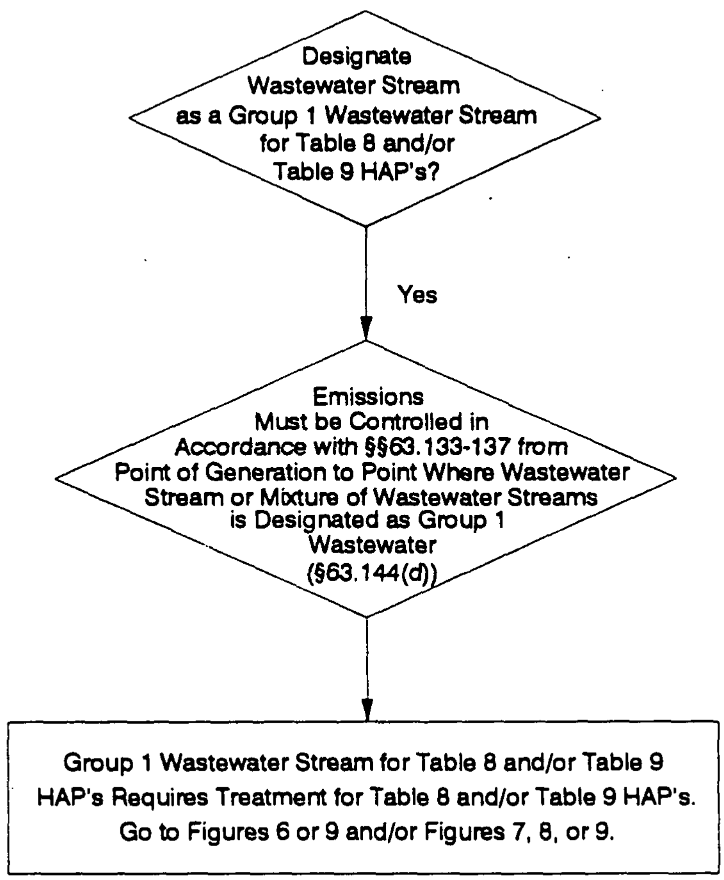
7927990aRTP



CMPU = Chemical Manufacturing Process Unit

7927991RTP

Figure 2. HON Wastewater Determination



8648696RTP

Figure 3. Designation of Group 1 Wastewater Streams (Refer to §§63.132(c) and 63.144(d))

Determine the VOHAP concentration
and flow rate either (1) at the point of generation
or (2) downstream of the point of generation.

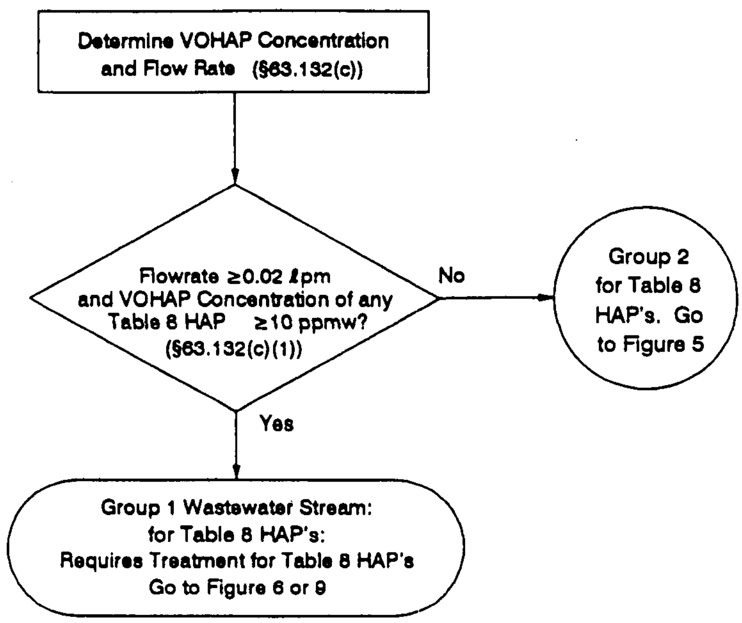


Figure 4. Group 1 and Group 2 Determinations for Wastewater Streams - Table 8 HAP's (Refer to §§63.132(d) and 63.138(b))

7927992R

Determine the VOHAP concentration
and flow rate either (1) at the point of generation
or (2) downstream of the point of generation.

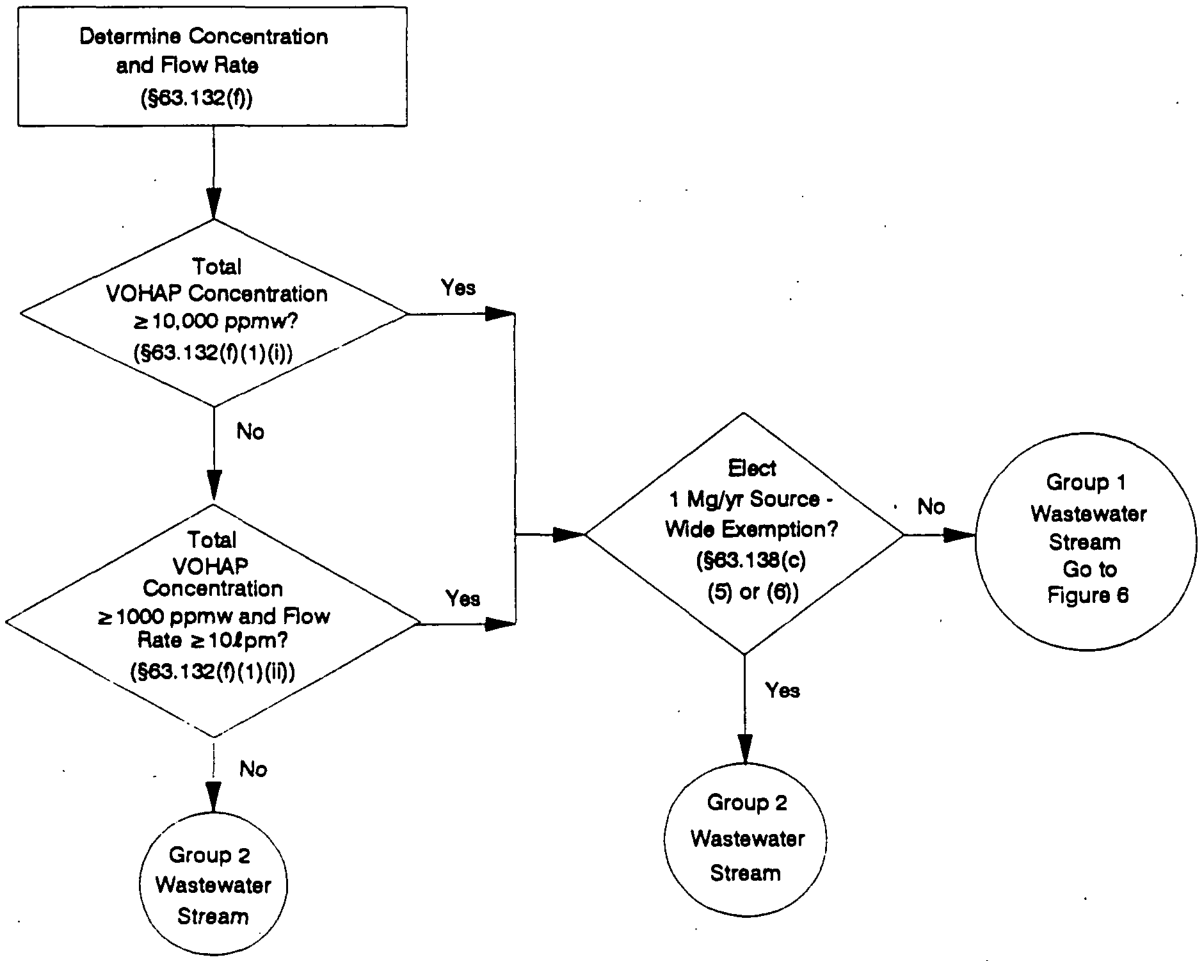


Figure 5. Group 1 and Group 2 Determinations for Wastewater Streams - Table 9 HAP's (Refer to §§63.132(f) and 63.138(c))

7927993R

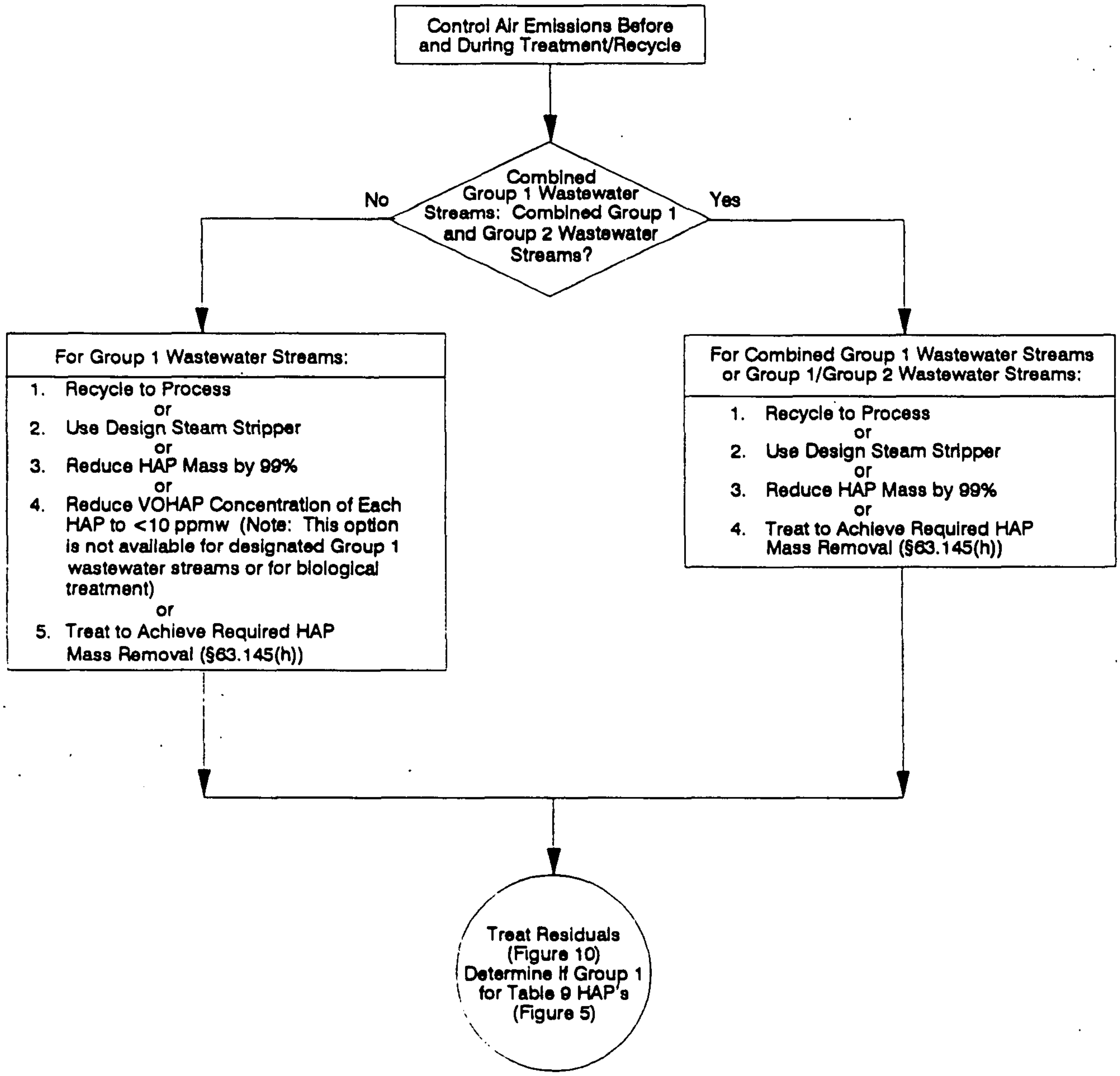
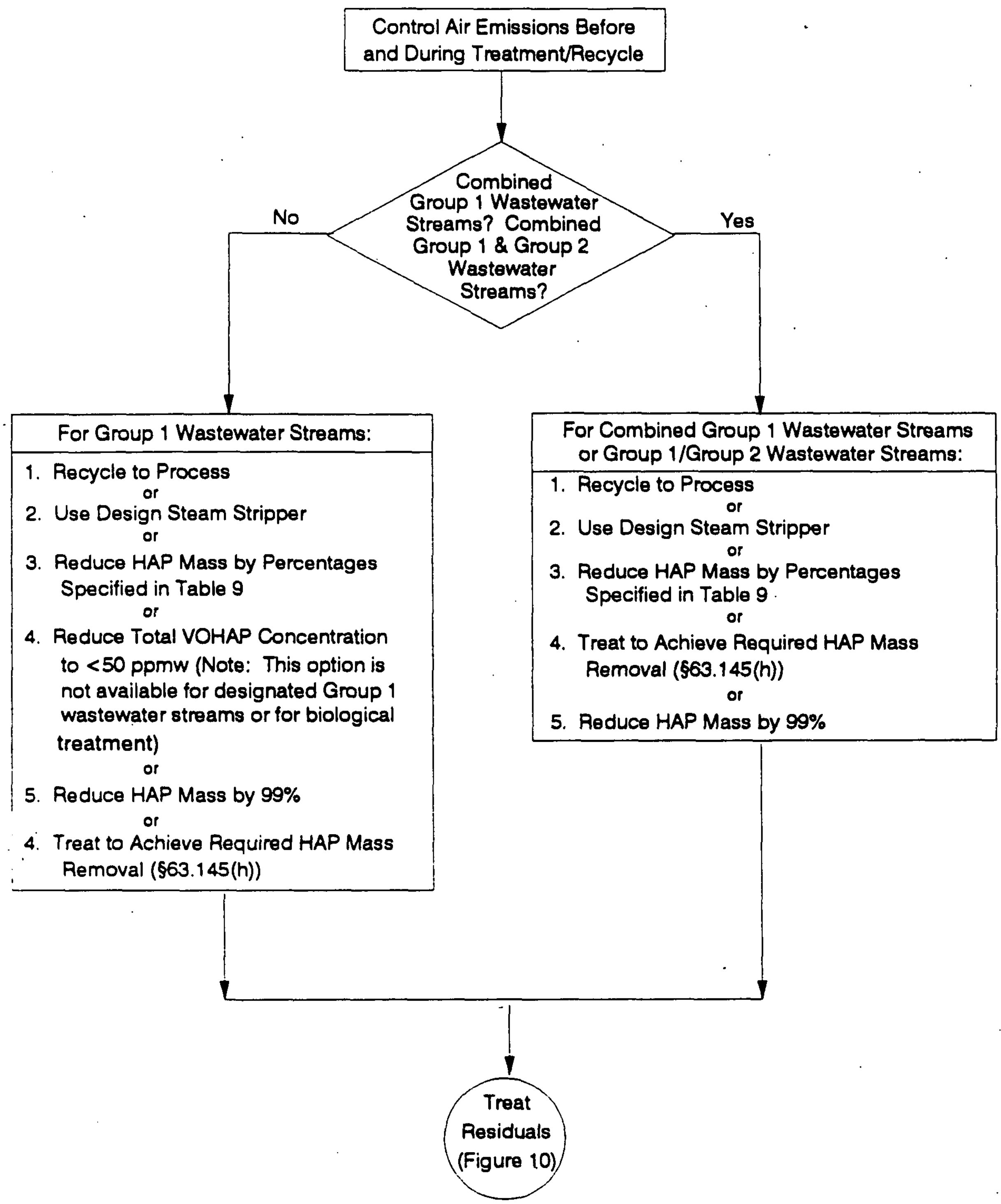


Figure 6. Compliance Options for Control of Table 8 HAP's (Refer to §63.138(b))

7927994R



792799SR

Figure 7. Compliance Options for Control of Table 9 HAP's (Refer to §63.138(c))

Note: Non-process wastewater streams and wastewater streams from other chemical manufacturing process units cannot be combined when using this option. This option may not be used for designated Group 1 wastewater streams.

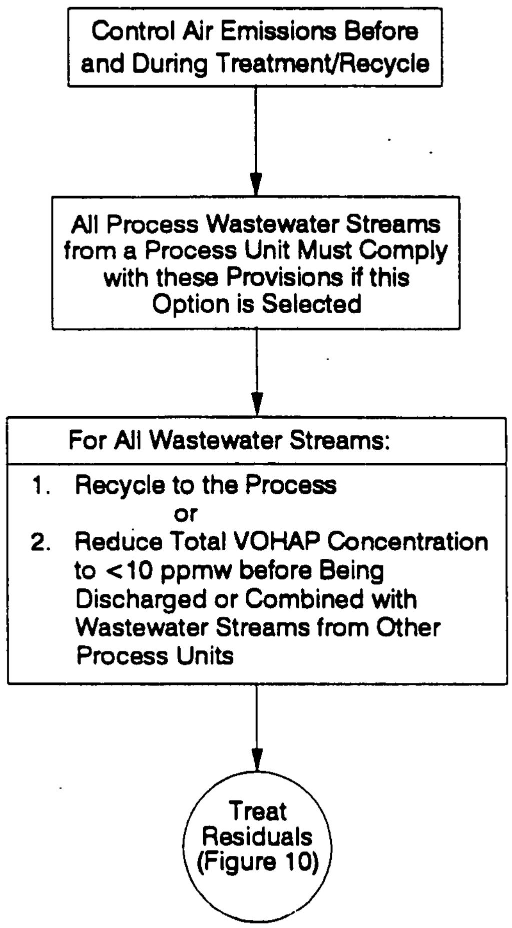
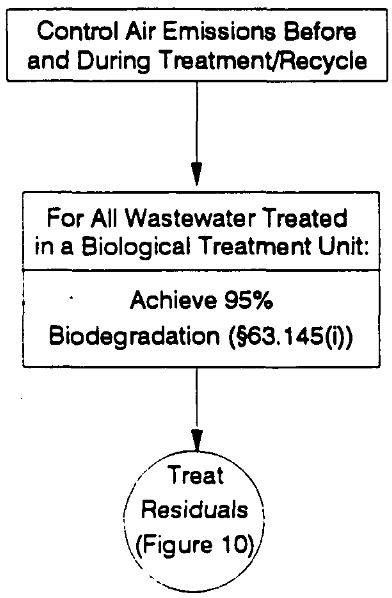


Figure 8. Process Unit Alternative Compliance Option
(for existing sources only)
(Refer to §63.138(d))

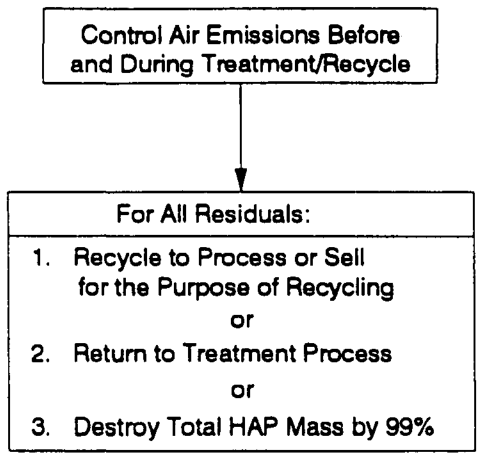
7927996R

For control of Table 8 and Table 9 HAP's:



864868RTP

Figure 9. Biological Treatment Alternative Compliance Option
(for new and existing sources)
(Refer to §63.138(e))



7927997R

Figure 10. Compliance Options for Control of Residuals
(Refer to §63.138(h))

APPENDIX E - INFORMATION ON WASTEWATER TO BE SUBMITTED WITH IMPLEMENTATION PLANS

This appendix contains copies of 2 tables (Tables 14a and 14b) from Subpart G of the HON. The tables specify the information that must be submitted with the Implementation Plan.

TABLE E-1. INFORMATION ON TABLE 8 ORGANIC HAP's TO BE SUBMITTED WITH IMPLEMENTATION PLAN FOR PROCESS UNITS AT NEW SOURCES[a,b]

Process Unit Identification[c]	Stream Identification	VOHAP Concentration (ppmw)[d,e] Average	Flow Rate (lpm)[e,f]	Group 1 or Group 2[g]	Intend to Control?[h] (Y or N)	Intended Treatment Technology[i]	Intended Control Device

[a] The information specified in this table must be submitted; however, it may be submitted in any format. This table presents an example format.

[b] Other requirements for the Implementation Plan are specified in §63.151 of Subpart G.

[c] Also include a description of the chemical manufacturing process unit (e.g., storage tank).

[d] Except when §63.132(c) is used, annual average VOHAP concentrations, at point of generation, of each HAP compound listed in table 8 of Subpart G that is present in the wastewater stream, parts per million by weight (ppmw).

[e] If §63.132(c) is used, include annual average VOHAP concentration and flow rate for the point where Group 1 streams are designated.

[f] Except when §63.132(c) is used, annual average flow rate at point of generation, liters per minute (lpm).

[g] Is the stream Group 1 or Group 2 for table 8 compounds as determined by the procedures specified in §63.132(c) and (d) of Subpart G?

[h] Does the owner or operator intend to control the stream in accordance with the requirements specified in §63.138(b) of Subpart G, yes (Y) or no (N)?

[i] If the owner or operator intends to control the stream, what is the intended treatment technology (e.g., steam stripping, biological treatment, etc.)?

TABLE E-2. INFORMATION ON TABLE 9 ORGANIC HAP's TO BE SUBMITTED WITH IMPLEMENTATION PLAN FOR PROCESS UNITS AT NEW AND EXISTING SOURCES[a,b]

Chemical Manufacturing Process Unit Identification[c]	Stream Identification	Total VOHAP Concentration (ppmw)[d,e]	Flow Rate (lpm)[e,f]	Group 1 or Group 2[g]	Intend to Control[h] (Y or N)	Intended Treatment Technology[i]	Intended Control Device
		Average					

[a] The information specified in this table must be submitted; however, it may be submitted in any format. This table presents an example format.

[b] Other requirements for the Implementation Plan are specified in §63.151 of Subpart G.

[c] Also include a description of the process unit (e.g., storage tank).

[d] Except when §63.132(c) is used, annual average total VOHAP concentration and expected range of total VOHAP in wastewater stream at point of generation, parts per million by weight (ppmw).

[e] If §63.132(c) is used, include annual average VOHAP concentration and flow rate for the point where Group 1 streams are designated.

[f] Except when §63.132(c) is used, annual average flow rate at point of generation, liters per minute (lpm).

[g] Is the stream Group 1 or Group 2 for table 9 compounds as determined by the procedures specified in §63.132(c) or (g) of Subpart G?

[h] Does the owner or operator intend to control the stream in accordance with the requirements of §63.138(c) or (d) of Subpart G, yes (Y) or no (N)?

[i] If the owner or operator intends to control the stream, what is the intended treatment technology (e.g., steam stripping, biological treatment, etc.)?

APPENDIX F - INFORMATION ON WASTEWATER TO BE SUBMITTED WITH NOTIFICATION OF COMPLIANCE STATUS

This appendix contains copies of 6 tables (Tables 15a, 15b, 16, 17, 18, and 19) from Subpart G of the HON. The tables specify the information that must be submitted with the Notification of Compliance Status.

TABLE F-1. INFORMATION ON TABLE 8 ORGANIC HAP's TO BE SUBMITTED WITH NOTIFICATION OF COMPLIANCE STATUS FOR PROCESS UNITS AT NEW SOURCES[a,b]

Process Unit Identification Code[c]	Stream Identification Code	VOHAP Concentration (ppmw)[d,e]	Flow Rate (lpm)[e,f]	Group 1 or Group 2[g]	Compliance Approach[h]	Treatment Process(es) Identification Code[i]	Waste Management Unit(s) Identification[j]	Intended Control Device
		Average						

[a] The information specified in this table must be submitted; however, it may be submitted in any format. This table presents an example format.

[b] Other requirements for the Notification of Compliance Status are specified in §63.152(b) of Subpart G.

[c] Also include a description of the process unit (e.g., storage tank).

[d] Except when §63.132(c) is used, annual average VOHAP concentrations, at point of generation, of each HAP compound listed in table 8 of Subpart G that is present in the wastewater stream, parts per million by weight (ppmw).

[e] When §63.132(c) is used, include the annual average VOHAP concentration and flow rate for the point where the Group 1 stream is designated.

[f] Except when §63.132(c) is used, annual average flow rate at point of generation, liters per minute (lpm).

[g] Is the stream Group 1 or Group 2 for table 8 compounds as determined by the procedures specified in §63.132(c) or (d) of Subpart G?

[h] If stream is being controlled in accordance with the requirements of §63.138(b), identify the subparagraph in §63.138(b) with which the owner or operator has elected to comply. For example, if the owner or operator elects to recycle the stream to a production process, the appropriate subparagraph is §63.138(b)(1)(i).

TABLE F-1. INFORMATION ON TABLE 8 ORGANIC HAP's TO BE SUBMITTED WITH NOTIFICATION OF COMPLIANCE STATUS FOR PROCESS UNITS AT NEW SOURCES,[a,b] continued

[i] If the stream is being treated in accordance with the requirements of §63.138(b), give identification code of treatment unit(s) treating stream. Identification codes should correspond to entries in Table F-4.

[j] For each Group 1 wastewater stream, identify the waste management unit(s) receiving or managing the stream. Identification codes should correspond to entries in Table F-5.

TABLE F-2. INFORMATION ON TABLE 9 ORGANIC HAP's TO BE SUBMITTED WITH NOTIFICATION OF COMPLIANCE STATUS FOR PROCESS UNITS AT NEW AND EXISTING SOURCES[a,b]

Process Unit Identification[c]	Stream Identification	Total VOHAP Concentration(ppmw)[d,e] Average	Flow Rate (lpm)[e,f]	Group 1 or Group 2[g]	Compliance Approach[h]	Treatment Process Identification[i]	Waste Management Unit Identification[j]	Intended Control Device

[a] The information specified in this table must be submitted; however, it may be submitted in any format. This table presents an example format.

[b] Other requirements for the Notification of Compliance Status are specified in §63.152(b) of Subpart G.

[c] Also include a description of the process unit (e.g., storage tank).

[d] Except when §63.132(c) is used, annual average total VOHAP concentration and expected range of total VOHAP concentration in wastewater stream at point of generation, parts per million by weight (ppmw).

[e] When §63.132(c) is used, include the annual average VOHAP concentration and flow rate for the point where the Group 1 stream is designated.

[f] Except when §63.132(c) is used, annual average flow rate at point of generation, liters per minute (lpm).

[g] Is the stream Group 1 or Group 2 for table 9 HAPs as determined by the procedures specified in §63.132(c) or (g)?

[h] If the stream is being controlled in accordance with the requirements of §63.138(c), identify the subparagraph in §63.138(c) with which the owner or operator has elected to comply. For example, if the owner or operator elects to reduce the total VOHAP mass flow rate of an individual stream by 99 percent, the appropriate subparagraph is §63.138(c)(1)(ii)(B).

[i] If stream is being treated in accordance with §63.138(c), give identification code of treatment unit(s) treating stream. Identification codes should correspond to entries in Table F-4.

[j] For each Group 1 wastewater stream, identify the waste management unit(s) receiving or managing the stream. Identification codes should correspond to entries in Table F-5.

TABLE F-3. INFORMATION TO BE SUBMITTED WITH NOTIFICATION OF COMPLIANCE STATUS FOR PROCESS UNITS AT EXISTING SOURCES COMPLYING WITH PROCESS UNIT ALTERNATIVE IN §63.138(d)[a,b,c]

Process Unit Identification[d]	Stream Identification	Total VOHAP Concentration[e] (ppmw)	Flow[f] Rate (lpm)	Treatment Process Identification[g]	Waste Management Unit Identification[h]
		Average			

[a] The information specified in this table shall be provided for each wastewater stream generated by the process unit to which this alternative provision is being applied.

[b] The information specified in this table must be submitted; however, it may be submitted in any format. This table presents an example format.

[c] Other requirements for the Notification of Compliance Status are specified in §63.152(b) of Subpart G.

[d] Also include a description of the process unit (e.g., storage tank).

[e] Flow-weighted annual average and expected range of total VOHAP concentration of individual or combined stream before exposure to the atmosphere and before combination with streams other than process wastewater from the specific process unit, parts per million by weight (ppmw).

[f] Annual average flow rate of combined or individual wastewater stream, liters per minute (lpm).

[g] If stream is being controlled, give identification code(s) of treatment unit(s) treating stream. Identification codes should correspond to entries in Table F-4.

[h] For each wastewater stream generated within the process unit, identify the waste management unit(s) receiving or managing the stream. Identification codes should correspond to entries in Table F-5.

TABLE F-4. INFORMATION FOR TREATMENT PROCESSES TO BE SUBMITTED WITH NOTIFICATION OF COMPLIANCE STATUS[a,b]

Treatment Process Identification[c]	Description[d]	Wastewater Stream(s) Treated[e]	Monitoring Parameters[f]

[a] The information specified in this table must be submitted; however, it may be submitted in any format. This table presents an example format.

[b] Other requirements for the Notification of Compliance Status are specified in §63.152(b) of Subpart G.

[c] Identification codes should correspond to those listed in Tables E-1, E-2, and F-1 through F-3.

[d] Description of treatment process.

[e] Stream identification code for each wastewater stream treated by each treatment unit. Identification codes should correspond to entries listed in Tables E-1, E-2, and F-1 through F-3.

[f] Parameter(s) to be monitored or measured in accordance with Table 8-9 of Section 8.3.5.

TABLE F-5. INFORMATION FOR WASTE MANAGEMENT UNITS TO BE SUBMITTED WITH NOTIFICATION OF COMPLIANCE STATUS[a,b]

Waste Management Unit Identification[c]	Description[d]	Wastewater Stream(s) Received or Managed[e]

[a] The information specified in this table must be submitted; however, it may be submitted in any format. This table presents an example format.

[b] Other requirements for the Notification of Compliance Status are specified in §63.152(b) of Subpart G.

[c] *Identification codes should correspond to those listed in Tables E-1, E-2, and F-1 through F-3.*

[d] Description of waste management unit.

[e] Stream identification code for each wastewater stream received or managed by each waste management unit. Identification codes should correspond to entries listed in Tables E-1, E-2, and F-1 through F-3.

TABLE F-6. INFORMATION ON RESIDUALS TO BE SUBMITTED WITH NOTIFICATION OF COMPLIANCE STATUS[a,b]

Residual Identification[c]	Residual Description[d]	Wastewater Stream Identification[e]	Treatment Process[f]	Fate[g]	Control Device Identification Code	Control Device Description[h]	Control Device Efficiency[i]

[a] The information specified in this table must be submitted; however, it may be submitted in any format. This table presents an example format.

[b] Other requirements for the Notification of Compliance Status are specified in §63.152(b) of Subpart G.

[c] Name or identification code of residual removed from Group 1 wastewater stream.

[d] Description of residual (e.g., steam stripper A-13 overhead condensates).

[e] Identification of stream from which residual is removed.

[f] Treatment process from which residual originates.

[g] Indicate whether residual is sold, returned to production process, or returned to waste management unit or treatment process; or whether HAP mass of residual is destroyed by 99 percent.

[h] If the fate of the residual is such that the HAP mass is destroyed by 99 percent, give description of device used for HAP destruction.

[i] If the fate of the residual is such that the HAP mass is destroyed by 99 percent, provide an estimate of control device efficiency and attach substantiation in accordance with §63.146(b)(9) of Subpart G.

APPENDIX G - COMPLIANCE CHECKLISTS

Appendix G is a collection of forms that the inspector can use to conduct a compliance inspection. These forms are identical to those in chapters 5 through 8. They are reproduced here so that they can be copied as needed for numerous inspections. Included in the appendix are the following forms:

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

Complete this form for process vent systems. A "yes" response to all questions will indicate full compliance and, "no" response will indicate noncompliance with the standard except where noted.

CONTROL OR RECOVERY DEVICE ____________

DATE OF STARTUP ____________

REVIEW OF RECORDS

IF THE CONTROL DEVICE IS A FLARE

1.	Results of the initial test were submitted in the NCS.[a]	Y ☐	N ☐
2.	The presence of a continuous flare pilot flame is monitored using a device designed to detect the presence of a flame.	Y ☐	N ☐
3.	All periods when all pilot flames to a flare were absent or the monitor was not operating have been recorded and reported in the PR.[b]	Y ☐	N ☐

IF THE CONTROL DEVICE IS A THERMAL INCINERATOR

1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	Test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
3.	A temperature monitoring device equipped with a continuous recorder is used to measure the temperature of the gas stream in the firebox (or in the ductwork immediately downstream of the firebox before any substantial heat exchange occurs).	Y ☐	N ☐
4.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[c] of firebox temperature are kept.	Y ☐	N ☐
6.	Records of daily average firebox temperature are kept.	Y ☐	N ☐
7.	All daily average firebox temperatures that are outside the site-specific established range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

8.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐
9.	If the firebox temperature is not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #9 is checked "Yes", the facility is in compliance even if numbers 3 through 8 are checked "No".]		
IF THE CONTROL DEVICE IS A CATALYTIC INCINERATOR			
1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	Test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
3.	Temperature monitoring devices equipped with continuous recorders are used to measure the temperature in the gas stream immediately before and after the catalyst bed.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the gas stream temperature upstream of the catalyst bed and the temperature difference across the bed was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[c] are kept of the temperature of the gas stream upstream of the catalyst bed and the temperature difference across the catalyst bed.	Y ☐	N ☐
6.	Records of the daily average temperature upstream of the catalyst bed and the temperature difference across the catalyst bed are kept.	Y ☐	N ☐
7.	All daily average upstream temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	All daily average temperature differences across the catalyst bed that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
9.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

10.	If the temperature upstream of the catalyst bed and/or the temperature differential across the catalyst bed are not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #10 is checked "Yes", the facility is in compliance even if numbers 3 through 9 are checked "No".]		
	IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY LESS THAN 44 MEGAWATTS AND THE VENT STREAM IS NOT INTRODUCED WITH THE PRIMARY FUEL		
1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
3.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
4.	Test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
5.	A temperature monitoring device equipped with a continuous monitor is used to measure the temperature of the gas stream in the firebox.	Y ☐	N ☐
6.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
7.	Continuous records[c] are kept of the firebox temperature.	Y ☐	N ☐
8.	Records of the daily average firebox temperature are kept.	Y ☐	N ☐
9.	All daily average firebox temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐

(continued)

11.	If the firebox temperature is not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting. [Note: If #11 is checked "Yes", the facility is in compliance even if numbers 5 through 10 are checked "No".]	Y ☐	N ☐
IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY GREATER THAN 44 MEGAWATTS			
1.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
2.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
IF THE CONTROL DEVICE IS A SCRUBBER (FOLLOWING A COMBUSTOR FOR A HALOGENATED VENT STREAM)			
1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	Either: (1) Test documentation demonstrates 99 percent control efficiency for total halogens and hydrogen halides or test documentation demonstrates that the outlet mass of total hydrogen halides and halogens are less than 0.45 kilograms per hour, or, (2) if the scrubber was installed prior to December 31, 1992, test documentation demonstrates 95 percent control efficiency for total halogens and hydrogen halides or test documentation demonstrates that the outlet mass of total hydrogen halides and halogens are less than 0.45 kilograms per hour.	Y ☐	N ☐
3.	A pH monitoring device equipped with a continuous recorder is used to monitor the pH of the scrubber effluent.	Y ☐	N ☐
4.	A flow meter equipped with a continuous recorder is used to measure the influent liquid flow and effluent vapor flow.	Y ☐	N ☐
5.	Documentation to establish a site-specific range for the pH, and liquid/gas ratio was submitted in the NCS[a] or operating permit.	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

6.	Continuous records[c] of the pH of the scrubber effluent are kept.	Y ☐	N ☐
7.	Continuous records[c] of the scrubber liquid/gas ratio are kept.	Y ☐	N ☐
8.	Records of the daily average pH and the daily average liquid/gas ratio are kept.	Y ☐	N ☐
9.	All daily average pH values of the scrubber effluent that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	All daily average scrubber liquid/gas ratios that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
11.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐
12.	If the pH and/or the scrubber liquid to gas ratio are not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #12 is checked "Yes", the facility is in compliance even if numbers 3 through 11 are checked "No".]		

IF THE RECOVERY DEVICE IS A CARBON ADSORBER AND THE TRE INDEX VALUE IS GREATER THAN 1.0 AND LESS THAN OR EQUAL TO 4.0

1.	Documentation of the initial TRE calculation including test results was submitted in the NCS.[a]	Y ☐	N ☐
2.	An integrating regeneration stream (e.g., steam) flow monitoring device having an accuracy of $\pm$10 percent and capable of recording total regeneration stream mass flow for each regeneration cycle is used to measure regeneration stream flow.	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

3.	A carbon bed temperature monitoring device capable of recording the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle is used to measure carbon bed regeneration temperature.	Y □	N □
4.	Documentation to establish a site-specific range for the regeneration stream flow and carbon bed regeneration temperature was submitted in the NCS[a] or operating permit.	Y □	N □
5.	Records are kept of the total regeneration stream mass flow for each carbon bed regeneration cycle.	Y □	N □
6.	Records are kept of the temperature of the carbon bed after each carbon bed regeneration.	Y □	N □
7.	All regeneration cycles when the total regeneration stream mass flow is outside the site-specific range are reported in the PR.[b]	Y □	N □
8.	All regeneration cycles during which the temperature of the carbon bed after regeneration is outside the site-specific range are reported in the PR.[b]	Y □	N □
9.	If the regeneration stream flow and/or the carbon bed regeneration temperature are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with items [(b) <u>and</u> (c) <u>and</u> (d)].	Y □	N □
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y □	N □
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y □	N □
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y □	N □
	[Note: If #9(a) is checked "Yes", <u>or</u> if 9(b) <u>and</u> 9(c) <u>and</u> 9(d) are checked "Yes", the facility is in compliance even if numbers 2 through 8 are checked "No".]		

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

IF THE RECOVERY DEVICE IS AN ABSORBER AND THE TRE INDEX VALUE IS GREATER THAN 1.0 AND LESS THAN OR EQUAL TO 4.0

1.	Documentation of the initial TRE calculation including test results was submitted in the NCS.[a]	Y ☐	N ☐
2.	A temperature monitoring device and a specific gravity monitoring device equipped with a continuous monitor are used to measure the exit temperature of the scrubbing liquid and the exit specific gravity.	Y ☐	N ☐
3.	Documentation to establish a site-specific range for the exit temperature of the scrubbing liquid and exit specific gravity was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
4.	Records of the daily average exit temperature of the scrubbing liquid and exit specific gravity are kept.	Y ☐	N ☐
5.	Continuous records[c] of the exit temperature of the absorbing liquid are kept.	Y ☐	N ☐
6.	Continuous records[c] of the exit specific gravity are kept.	Y ☐	N ☐
7.	All daily average exit temperatures of the absorbing liquid that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
8.	All daily average specific gravity values that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
9.	If the exit temperature and/or the exit specific gravity are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with items [(b) and (c) and (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

[Note: If #9(a) is checked "Yes", or if 9(b) and 9(c) and 9(d) are checked "Yes", the facility is in compliance even if numbers 2 through 8 are checked "No".]

IF THE RECOVERY DEVICE IS A CONDENSER AND THE TRE INDEX VALUE IS GREATER THAN 1.0 AND LESS THAN OR EQUAL TO 4.0

1.	Documentation of the initial TRE calculation including test results was submitted in the NCS.[a]		Y ☐	N ☐
2.	A temperature monitoring device equipped with a continuous recorder is used to measure the product side exit temperature.		Y ☐	N ☐
3.	Documentation to establish a site-specific range for the exit temperature was submitted in the NCS[a] or operating permit.		Y ☐	N ☐
4.	Records of the daily average exit temperature are kept.		Y ☐	N ☐
5.	Continuous records[c] of the exit temperature are kept.		Y ☐	N ☐
6.	All product side daily average exit temperatures that are outside the site-specific range are reported in the PR.[b]		Y ☐	N ☐
7.	If the exit temperature is not monitored, either:			
	(a)	The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with items [(b) and (c) and (d)].	Y ☐	N ☐
	(b)	Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c)	Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d)	All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

[Note: If #7(a) is checked "Yes", or if 7(b) and 7(c) and 7(d) are checked "Yes", the facility is in compliance even if numbers 2 through 6 are checked "No".]

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

GENERAL - FOR ANY (NON-RECOVERY) CONTROL DEVICE

[Note: Items #1 through #4 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.	Hourly records are kept of whether the flow indicator in the bypass line was operating and whether flow was detected at any time during the hour, when seal mechanisms are not used and	Y ☐	N ☐
2.	The time and duration of all periods when flow is diverted or the monitor is not operating are reported in the PR when seal mechanisms are not used [or #3 and #4].	Y ☐	N ☐
3.	Records of monthly visual inspections are kept when seal mechanisms are used and	Y ☐	N ☐
4.	All periods when the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out are recorded and reported in the PR when seal mechanisms are used.	Y ☐	N ☐

[Note: In order to be in compliance with provisions for bypass lines either: #1 and #2 must both be checked "yes" or both #3 and #4 must both be checked "yes".]

GENERAL - FOR GROUP 2 PROCESS VENTS

1.	Records of process changes and the recalculation of TRE index values are kept when the TRE index value of the vent stream is greater than 1.0.[d]	Y ☐	N ☐
2.	Records of process changes and the recalculation of flow rate are kept when the flow rate of the vent stream is less than 0.005 standard cubic meter per minute.	Y ☐	N ☐
3.	Records of process changes and the recalculation or remeasurement of concentration are kept if the concentration in the vent stream is less than 50 ppmv.	Y ☐	N ☐

(continued)

TABLE 5-6. COMPLIANCE CHECKLIST FOR PROCESS VENT SYSTEMS

4.	Whenever process changes are made which cause a change in the status of the process vent stream, records are kept and a report was submitted within 180 days of the process modification or in the next PR describing the process modification and showing the results of the recalculation of flow rate, organic HAP concentration, and/or TRE index value.	Y ☐	N ☐
VISUAL INSPECTION			
1.	A flow indicator is present at the entrance to any bypass line that could divert the vent stream flow away from the control device to the atmosphere <u>or</u> all bypass line valves are sealed in a closed position (e.g., with a car seal or lock-and-key configuration).	Y ☐	N ☐
2.	For flares, a device for detecting the flame is present.	Y ☐	N ☐
3.	For all incinerators, and for boilers and process heaters with design heat input capacities less than 44 megawatts and the vent steam is not introduced with the primary fuel, a temperature monitoring device is present.	Y ☐	N ☐
4.	For scrubbers used after combustors for halogenated vent streams, a device for measuring pH and a device for measuring flow are present.	Y ☐	N ☐
5.	For carbon adsorbers, a device for measuring carbon bed temperature and a device for measuring regeneration stream flow are present [or #8].	Y ☐	N ☐
6.	For absorbers, a device for measuring exit liquid temperature and a device for measuring exit specific gravity are present [or #8].	Y ☐	N ☐
7.	For condensers, a temperature monitoring device is present [or #8].	Y ☐	N ☐
8.	If the monitoring devices listed in items 5 through 7 are not present, an organic compounds monitor is present. [Note: If item #8 is checked "Yes", the facility is in compliance even if numbers 5 through 7 are checked "No".]	Y ☐	N ☐
9.	Visual inspection of the facility is consistent with written records.	Y ☐	N ☐

[a] NCS = Notification of Compliance Status.

[b] PR = Periodic Reports.

(continued)

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[c] Continuous records, as defined in §63.111, means documentation, either in computer readable form or hard copy, or data values measured at least once every 15 minutes and recorded at the frequency specified in §63.152(f). Section 63.152(f) allows the owner to record either values measured every 15 minutes or 15-minute (or shorter period) block average values calculated from all measured values during each period. If the daily average value of a monitored value for a given parameter is within the range established in the NCS, the owner or operator may retain block hourly averages instead of the 15-minute values. An owner or operator may request approval to use alternatives to continuous monitoring under §63.151(g) of Subpart G.

[d] The number of excused excursions is as follows:

For the first semi-annual period after the NCS is due - 6 excursions;
For the second semi-annual period - 5 excursions;
For the third semi-annual period - 4 excursions;
For the fourth semi-annual period - 3 excursions;
For the fifth semi-annual period - 2 excursions;
For the sixth and all subsequent semi-annual periods - 1 excursion.

An excursion occurs when: (1) the daily average value of the monitored parameter is outside the range established in the NCS or operating permit; or (2) if monitoring data are insufficient. In order to have sufficient data, a source must have measured values for each 15-minute period within each hour for at least 75 percent of the hours the control device is operating in a day. For example, if a control device operates 24 hours per day, data must be available for all 15-minute periods in at least 18 hours; but up to 6 hours may have incomplete data. If more than 6 hours have incomplete data, an excursion has occurred. For control devices that operate less than 4 hours a day, one hour of incomplete data is allowed.

[e] Examples of process changes include, but are not limited to, changes in production capacity, production rate, feedstock type, or catalyst type, or whenever there is replacement, removal, or addition of recovery equipment. Process changes do not include process upsets; unintentional, temporary process changes; and changes that are within the range on which the original TRE calculation was based.

NOTE ALL DEFICIENCIES

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

Complete this form for transfer racks. A "yes" response to all questions will indicate full compliance, and a "no" response will indicate noncompliance with the standard except where noted. Note that for transfer racks, a combustion or recovery device can be used to reduce emissions by 98 percent or to 20 ppmv. Vapor balancing can also be used to comply.

CONTROL DEVICE ____________________

DATE OF STARTUP ____________________

REVIEW OF RECORDS

IF THE CONTROL DEVICE IS A FLARE

1.	Results of the initial test were submitted in the NCS.[a]	Y ☐	N ☐
2.	The presence of a continuous flare pilot flame is monitored using a heat sensing device designed to detect the presence of a flame.	Y ☐	N ☐
3.	All periods when the flare pilot did not have a flame have been recorded and reported in the PR.[b]	Y ☐	N ☐

IF THE CONTROL DEVICE IS A THERMAL INCINERATOR

1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	A temperature monitoring device equipped with a continuous monitor is used to measure the temperature of the gas stream in the firebox (or in the ductwork immediately downstream of the firebox before any substantial heat exchange occurs).	Y ☐	N ☐
4.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[d] of firebox temperature are kept.[c]	Y ☐	N ☐
6.	Records of daily average firebox temperature are kept.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

7.	All daily average firebox temperatures that are outside the site-specific established range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
9.	If the firebox temperature is not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #9 is checked "Yes", the facility is in compliance even if numbers 3 through 8 are checked "No".]		
IF THE CONTROL DEVICE IS A CATALYTIC INCINERATOR			
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	Temperature monitoring devices equipped with continuous recorders are used to measure the temperature in the gas stream immediately before and after the catalyst bed.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the gas stream temperature upstream of the catalyst bed and the temperature difference across the bed was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[d] are kept of the temperature of the gas stream upstream of the catalyst bed and the temperature difference across the catalyst bed.[c]	Y ☐	N ☐
6.	Records of the daily average temperature upstream of the catalyst bed and the temperature difference across the catalyst bed are kept.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

7.	All daily average upstream temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	All daily average temperature differences across the catalyst bed that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
9.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
10.	If the temperature upstream of the catalyst bed and/or the temperature differential across the catalyst bed are not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #10 is checked "Yes", the facility is in compliance even if numbers 3 through 9 are checked "No".]		
IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY LESS THAN 44 MEGAWATTS AND THE VENT STREAM IS NOT INTRODUCED WITH THE PRIMARY FUEL			
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
3.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
4.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
5.	A temperature monitoring device equipped with a continuous monitor is used to measure the temperature of the gas stream in the firebox.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

6.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
7.	Continuous records[d] are kept of the firebox temperature.[c]	Y ☐	N ☐
8.	Records of the daily average firebox temperature are kept.	Y ☐	N ☐
9.	All daily average firebox temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
11.	If the firebox temperature is not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #11 is checked "Yes", the facility is in compliance even if numbers 5 through 10 are checked "No".]		

IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY GREATER THAN 44 MEGAWATTS

1.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
2.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐

IF THE CONTROL DEVICE IS A SCRUBBER (FOLLOWING A COMBUSTOR FOR A HALOGENATED VENT STREAM)

1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

2.	Either (1) test documentation demonstrates 99 percent control efficiency for total halogens and hydrogen halides or test documentation demonstrates that the outlet mass of total hydrogen halides and halogens are less than 0.45 kilograms per hour, or (2) if the scrubber was installed prior to December 31, 1992, test documentation demonstrates 95 percent control efficiency for total halogens and hydrogen halides or test documentation demonstrates that the outlet mass of total hydrogen halides and halogens are less than 0.45 kilograms per hour.	Y ☐	N ☐
3.	A pH monitoring device equipped with a continuous recorder is used to monitor the pH of the scrubber effluent.	Y ☐	N ☐
4.	A flow meter equipped with a continuous recorder is used to measure the influent liquid flow and effluent vapor flow.	Y ☐	N ☐
5.	Documentation to establish a site-specific range for the pH, and liquid/gas ratio was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
6.	Continuous records[d] of the pH of the scrubber effluent are kept.	Y ☐	N ☐
7.	Continuous records[d] of the scrubber liquid/gas ratio are kept.[c]	Y ☐	N ☐
8.	Records of the daily average pH and the daily average liquid/gas ratio are kept.	Y ☐	N ☐
9.	All daily average pH values of the scrubber effluent that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	All daily average scrubber liquid/gas ratios that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
11.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
12.	If the pH and/or the scrubber liquid to gas ratio are not monitored, the facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #12 is checked "Yes", the facility is in compliance even if numbers 3 through 11 are checked "No".]		

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

IF THE RECOVERY DEVICE IS A CARBON ADSORBER

1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	An integrating regeneration stream (e.g., steam) flow monitoring device having an accuracy of $\pm$10 percent and capable of recording total regeneration stream mass flow for each regeneration cycle is used to measure regeneration stream flow.	Y ☐	N ☐
4.	A carbon bed temperature monitoring device capable of recording the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle is used to measure carbon bed regeneration temperature.	Y ☐	N ☐
5.	Documentation to establish a site-specific range for the regeneration stream flow and carbon bed regeneration temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
6.	Records are kept of the total regeneration stream mass flow for each carbon bed regeneration cycle.	Y ☐	N ☐
7.	Records are kept of the temperature of the carbon bed after each carbon bed regeneration.	Y ☐	N ☐
8.	All regeneration cycles when the total regeneration stream mass flow is outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
9.	All regeneration cycles during which the temperature of the carbon bed after regeneration is outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

11. If the regeneration stream flow and/or the carbon bed regeneration temperature are not monitored, either:

(a)	The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with items [(b) and (c) and (d)].	Y ☐	N ☐
(b)	Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
(c)	Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
(d)	All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

[Note: If #11(a) is checked "Yes", or if 11(b) and 11(c) and 11(d) are checked "Yes", the facility is in compliance even if numbers 3 through 10 are checked "No".]

IF THE RECOVERY DEVICE IS AN ABSORBER

1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y ☐	N ☐
2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	A temperature monitoring device and a specific gravity monitoring device equipped with a continuous monitor are used to measure the exit temperature of the scrubbing liquid and the exit specific gravity.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the exit temperature of the scrubbing liquid and exit specific gravity was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
5.	Records of the daily average exit temperature of the scrubbing liquid and exit specific gravity are kept.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

6.	Continuous records[d] of the exit temperature of the absorbing liquid are kept.[c]	Y □	N □
7.	Continuous records[d] of the exit specific gravity are kept.	Y □	N □
8.	All daily average exit temperatures of the absorbing liquid that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y □	N □
9.	All daily average exit specific gravity values that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y □	N □
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y □	N □
11.	If the exit temperature and/or the exit specific gravity are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with items [(b) <u>and</u> (c) <u>and</u> (d)].	Y □	N □
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y □	N □
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y □	N □
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y □	N □
	[Note: If #11(a) is checked "Yes", <u>or</u> if 11(b) <u>and</u> 11(c) <u>and</u> 11(d) are checked "Yes", the facility is in compliance even if numbers 3 through 10 are checked "No".]		
IF THE RECOVERY DEVICE IS A CONDENSER			
1.	Either the results of the initial performance test were submitted in the NCS or a design evaluation was submitted[c] in the IP that documents that the control device achieves the required control efficiency during maximum load conditions.	Y □	N □

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

2.	Either (1) test documentation demonstrates 98 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC; or (2) the parameters identified in the design evaluation are being monitored and maintained within the ranges specified in the NCS.	Y ☐	N ☐
3.	A temperature monitoring device equipped with a continuous recorder is used to measure the product side exit temperature.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the exit temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
5.	Records of the daily average exit temperature are kept.	Y ☐	N ☐
6.	Continuous records[d] of the exit temperature are kept.[c]	Y ☐	N ☐
7.	All product side daily average exit temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[e]	Y ☐	N ☐
9.	If the exit temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with items [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #9(a) is checked "Yes", <u>or</u> if 9(b) <u>and</u> 9(c) <u>and</u> 9(d) are checked "Yes", the facility is in compliance even if numbers 3 through 8 are checked "No".]		

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

IF THE RECOVERY DEVICE IS A VAPOR-BALANCING SYSTEM AND THE LOADING OPERATION IS SUBJECT TO HON TRANSFER PROVISIONS[f]

1.	Records are kept of all parts of any vapor-balancing system that are designated as either unsafe-to-inspect or difficult-to-inspect.	Y ☐	N ☐
2.	For equipment that is designated as difficult to inspect, a written plan is kept that requires inspection of equipment at least once every five years.	Y ☐	N ☐
3.	For equipment that is designated as unsafe to inspect, a written plan is kept that requires inspection of equipment as frequently as practicable.	Y ☐	N ☐
4.	For each inspection during which a leak was detected, the following information is recorded and reported.		
	(a) Instrument identification numbers, operator name or initials, and equipment identification information;	Y ☐	N ☐
	(b) The date the leak was detected and the date of the first attempt to repair it;	Y ☐	N ☐
	(c) Maximum instrument reading after the leak is repaired or determined to be non-repairable;	Y ☐	N ☐
	(d) Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered;	Y ☐	N ☐
	(e) Name or initials of person who decides repairs cannot be made without a shutdown;	Y ☐	N ☐
	(f) Expected date of successful repair if not repaired within 15 days;	Y ☐	N ☐
	(g) Dates of shutdowns that occur while the equipment is unrepaired; and	Y ☐	N ☐
	(h) Date of successful repair of the leak.	Y ☐	N ☐
5.	For each inspection during which no leaks were detected, the following records are kept:	Y ☐	N ☐
	(a) Record that the inspection was performed;	Y ☐	N ☐
	(b) Date of the inspection; and	Y ☐	N ☐
	(c) Statement that no leaks were found.	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

GENERAL - FOR ANY CONTROL DEVICE, RECOVERY DEVICE, OR VAPOR-BALANCING SYSTEM

Note: Items #1 through #4 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.	Hourly records are kept of whether the flow indicator in the bypass line was operating and whether flow was detected at any time during the hour, when seal mechanisms are not used, <u>and</u>	Y ☐	N ☐
2.	The time and duration of all periods when flow is diverted or the monitor is not operating are reported in the PR when seal mechanisms are not used [<u>or</u> #3 and #4].	Y ☐	N ☐
3.	Records of monthly inspections are kept when seal mechanisms are used <u>and</u>	Y ☐	N ☐
4.	All periods when the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out are recorded and reported in the PR when seal mechanisms are used.	Y ☐	N ☐
	[Note: In order to be in compliance with provisions for bypass lines either: #1 and #2 must both be checked "Yes" or both #3 and #4 must be checked "Yes".]		
5.	All tank trucks and railcars have a current DOT pressure test certification in accordance with the requirements of 49 CFR 180 for tank trucks or 49 CFR 173.31 for railcars or have been demonstrated to be vapor-tight within the preceding 12 months.[g]	Y ☐	N ☐
	[Note: Items #6 through #10 do not apply to vapor collection systems that are operated under negative pressure.]		
6.	Records are kept of all parts of any vapor-collection system that are designated as either unsafe-to-inspect or difficult-to-inspect.	Y ☐	N ☐
7.	For equipment that is designated as difficult to inspect, a written plan is kept that requires inspection of equipment at least once every five years.	Y ☐	N ☐
8.	For equipment that is designated as unsafe to inspect, a written plan is kept that requires inspection of equipment as frequently as practicable.	Y ☐	N ☐
9.	For each inspection during which a leak was detected, the following information is recorded and reported.		
	(a) Instrument identification numbers, operator name or initials, and equipment identification information;	Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

	(b)	The date the leak was detected and the date of the first attempt to repair it;	Y ☐	N ☐
	(c)	Maximum instrument reading after the leak is repaired or determined to be non-repairable;	Y ☐	N ☐
	(d)	Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered;	Y ☐	N ☐
	(e)	Name or initials of person who decides repairs cannot be made without a shutdown;	Y ☐	N ☐
	(f)	Expected date of successful repair if not repaired within 15 days;	Y ☐	N ☐
	(g)	Dates of shutdowns that occur while the equipment is unrepaired; and	Y ☐	N ☐
	(h)	Date of successful repair of the leak.	Y ☐	N ☐
10.	For each inspection during which no leaks were detected, the following records are kept:			
	(a)	Record that the inspection was performed;	Y ☐	N ☐
	(b)	Date of the inspection; and	Y ☐	N ☐
	(c)	Statement that no leaks were found.	Y ☐	N ☐
GENERAL - FOR GROUP 1 AND GROUP 2 TRANSFER RACKS				
1.	Records are kept of the design and actual annual throughput of the loading rack, the weight percent HAP of liquid loaded, and the annual rack weighted average HAP vapor pressure.		Y ☐	N ☐
VISUAL INSPECTION				
1.	A flow indicator is present at the entrance to any bypass line that could divert the vent stream flow away from the control device to the atmosphere <u>or</u> all bypass line valves are sealed in a closed position (e.g., with a car seal or lock-and-key configuration).		Y ☐	N ☐
2.	For flares, a device for detecting the flame is present.		Y ☐	N ☐
3.	For all incinerators, and for boilers and process heaters with design heat input capacities less than 44 megawatts and the vent steam is not introduced with the primary fuel, a temperature monitoring device is present.		Y ☐	N ☐

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

4.	For scrubbers used after combustors for halogenated vent streams, a device for measuring pH and a device for measuring flow are present.	Y □	N □
5.	For carbon adsorbers, a device for measuring carbon bed temperature and a device for measuring regeneration stream flow are present [or #8].	Y □	N □
6.	For absorbers, a device for measuring exit liquid temperature and a device for measuring exit specific gravity are present [or #8].	Y □	N □
7.	For condensers, a temperature monitoring device is present [or #8].	Y □	N □
8.	If the monitoring devices listed in items 5 through 7 are not present, an organic compounds monitor is present. [Note: If item #8 is checked "Yes", the facility is in compliance even if numbers 5 through 7 are checked "No".]	Y □	N □
9.	Visual inspection of the facility is consistent with written records.	Y □	N □

[a] NCS = Notification of Compliance Status.

[b] PR = Periodic Reports.

[c] For transfer racks that transfer less than 11.8 million liters per year of liquids containing organic HAP's, the owner or operator may conduct a design evaluation and monitor the design parameters instead of conducting a performance test.

[d] Continuous records, as defined in §63.111, means documentation, either in computer readable form or hard copy, or data values measured at least once every 15 minutes and recorded at the frequency specified in §63.152(f). Section 63.152(f) allows the owner to record either values measured every 15 minutes or 15-minute (or shorter period) block average values calculated from all measured values during each period. If the daily average value of a monitored value for a given parameter is within the range established in the NCS, the owner or operator may retain block hourly averages instead of the 15-minute values. An owner or operator may request approval to use alternatives to continuous monitoring under §63.151(g) of Subpart G.

(continued)

TABLE 6-4. COMPLIANCE CHECKLIST FOR TRANSFER OPERATIONS

[e] The number of excused excursions is as follows:

For the first semi-annual period after the NCS is due - 6 excursions;
For the second semi-annual period - 5 excursions;
For the third semi-annual period - 4 excursions;
For the fourth semi-annual period - 3 excursions;
For the fifth semi-annual period - 2 excursions;
For the sixth and all subsequent semi-annual periods - 1 excursion.

An excursion occurs when: (1) the daily average value of the monitored parameter is outside the range established in the NCS or operating permit; or (2) if monitoring data are insufficient. In order to have sufficient data, a source must have measured values for each 15-minute period within each hour for at least 75 percent of the hours the control device is operating in a day. For example, if a control device operates 24 hours per day, data must be available for all 15-minute periods in at least 18 hours; but up to 6 hours may have incomplete data. If more than 6 hours have incomplete data, an excursion has occurred. For control devices that operate less than 4 hours a day, one hour of incomplete data is allowed.

[f] Under §63.111(d)(2) of Subpart G, the owner or operator may be exempt from the transfer provisions during operations during which vapor balancing is used. However, the owner or operator may elect to designate the rack as a transfer rack subject to the HON and comply with the provisions of §63.126 through §63.130 during operations when vapor balancing is used. For example, an owner or operator may elect to be subject in order to include the rack in an emissions average.

[g] This requirement does not apply for operations during which a vapor balancing system is used.

NOTE ALL DEFICIENCIES

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

Complete this form for storage vessels. A "yes" response to all questions will indicate full compliance, and a "no" response will indicate noncompliance with the standard.

CONTROL EQUIPMENT________________________

DATE OF STARTUP________________________

REVIEW OF RECORDS

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF

1. Review records of Seal Gap Measurements.

(a)	Records indicate that seal gap measurements were made annually for the secondary seal and every five years for the primary seal.[a]	Y ☐	N ☐
(b)	When a failure is detected, the date and results of seal gap measurements are submitted in periodic reports, annually for the secondary seal and every five years for the primary seal.	Y ☐	N ☐
(c)	When a failure is detected in the seal(s), the date and results of the visual inspection of the seals (which is performed together with the seal gap measurement) are included in the PR.[b]	Y ☐	N ☐
(d)	The date of the seal gap measurement, the raw data obtained during the measurement, and the calculations made are recorded.	Y ☐	N ☐
(e)	The raw data and calculations recorded for seal gap measurements is consistent with the information reported in the PR.	Y ☐	N ☐
(f)	For each seal gap measurement in a periodic report, there is a report notifying the Administrator of the measurement in advance. If the measurement had been planned, then the report was submitted 30 days in advance of the measurement. If the measurement was not planned, then the report was submitted at least 7 days in advance of the measurement and included an explanation of why the measurement was unplanned.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

	(g)	If a failure was detected during a seal gap measurement and visual seal inspection, the PR indicated the date and the nature of the repair or the date the vessel was emptied.	Y ☐	N ☐
	(h)	If the report described in (g) documents that the repair was made more than 45 days after the failure was detected, then the next PR includes documentation of the use of up to two 30-day extensions for completing the repair, including identification of the storage vessel, a description of the failure, documentation that alternate storage capacity was unavailable, a schedule of actions to be taken to repair the control equipment or empty the vessel as soon as possible, and the date the storage vessel was emptied and the nature of and date the repair was made.	Y ☐	N ☐
2.	Review records of internal visual inspections.			
	(a)	The occurrence of each internal visual inspection is recorded.	Y ☐	N ☐
	(b)	For each internal visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all storage vessels for which failures were detected, (3) a description of those failures, and (4) either the date and nature of the repair or the date the vessel was emptied.	Y ☐	N ☐
	(c)	Any repairs performed as described in (b) were completed before the repaired storage vessel was refilled.	Y ☐	N ☐
	(d)	For each internal visual inspection documented in a PR, there is a report notifying the Administrator in advance of the date the inspected vessel would be refilled after the inspection. If the inspection had been planned, the report was submitted 30 days in advance of refilling the vessel. If the inspection was not planned, then the report was submitted at least 7 days in advance of refilling the vessel and included an explanation of why the inspection was unplanned.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

IF THE CONTROL EQUIPMENT IS AN INTERNAL FLOATING ROOF OR AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF

1.	Review records of external visual inspections			
	(a)	The occurrence of each annual external visual inspection is recorded. If the floating roof is equipped with double seals, the source will not have performed this inspection if it chose to perform internal visual inspections once every 5 years instead of performing both annual external visual inspections and internal visual inspections at least once every 10 years. See Item 2 below.	Y ☐	N ☐
	(b)	For each annual external visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all storage vessels for which failures were detected, (3) a description of those failures, and (4) either the date and the nature of the repair or the date the vessel was emptied.	Y ☐	N ☐
	(c)	If the report described in (a) and (b) documents that the repair was made more than 45 days after the failure was detected, then the next PR includes documentation of the use of up to two 30-day extensions for completing the repair and the following information: identification of the storage vessel, a description of the failure, documentation that alternate storage capacity was unavailable, a schedule of actions to be taken to repair the control equipment or empty the vessel as soon as possible, and the date the storage vessel was emptied and the nature of and date the repair was made.	Y ☐	N ☐
2.	Review records of internal visual inspections.			
	(a)	The occurrence of each internal visual inspection is recorded. If the floating roof is equipped with double seals and the source chose not to perform annual external inspections [described in Item 1(b)], this inspection will be performed, recorded, and reported at least every 5 years.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

(b)	For each internal visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all storage vessels for which failures were detected, (3) a description of those failures, and (4) the date and nature of the repair.	Y ☐	N ☐
(c)	Any repairs performed as described in (b) were completed before the repaired storage vessel was refilled.	Y ☐	N ☐
(d)	For each internal visual inspection documented in a PR, there is a report notifying the Administrator in advance of the date the inspected vessel would be refilled after the inspection. If the inspection had been planned, the report was submitted 30 days in advance of refilling the vessel. If the inspection was not planned, then the report was submitted at least 7 days in advance of refilling the vessel and included an explanation of why the inspection was unplanned.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A CLOSED VENT SYSTEM AND CONTROL DEVICE

1. If the control device is a flare, review the following records.

(a)	The results of the initial compliance determination were submitted in the NCS.[c]	Y ☐	N ☐
(b)	All periods when the flare does not meet the general control device requirements specified in §63.11(b) of Subpart A are recorded and reported in the PR.	Y ☐	N ☐
(c)	Each record and report described in (b) includes an identification of the flare not meeting the general control device requirements and the reason the flare did not meet the general control device requirements.	Y ☐	N ☐
(d)	The total number of hours of routine maintenance of the flare during which the flare does not meet the general control device requirements specified in §63.11(b) of Subpart A is recorded and reported in the PR.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

2.	If the control device is not a flare, review the following records.			
	(a) A design evaluation of the control device and a description of the gas stream entering the control device are recorded and reported in the IP.[d,e,f]			
		(1) If the control device is a thermal incinerator, the design evaluation includes the autoignition temperature of the organic HAP emission stream, the combustion temperature, and the residence time at the combustion temperature.[e]	Y ☐	N ☐
		(2) If the control device is a carbon adsorber, the design evaluation includes the affinity of the organic HAP vapors for carbon, the amount of carbon in each bed, the number of beds, the humidity of the feed gases, the temperature of the feed gases, the flow rate of the organic HAP emission stream, the desorption schedule, the regeneration stream pressure or temperature, and the flow rate of the regeneration stream. For vacuum desorption, pressure drop is included.	Y ☐	N ☐
		(3) If the control device is a condenser, the design evaluation includes the final temperature of the organic HAP vapors, the type of condenser, and the design flow rate of the organic HAP emission stream.	Y ☐	N ☐
	(b) The documentation described in (a) demonstrates that the control device achieves 95-percent control efficiency during reasonably expected maximum loading conditions (or 90-percent efficiency if the control device was installed prior to December 31, 1992).		Y ☐	N ☐
	(c) Recorded and reported in the IP are: (1) a description of the parameter (or parameters) to be monitored to ensure that the control device is operated and maintained in conformance with its design, (2) an explanation of the criteria used for selection of the parameter (or parameters), and (3) the frequency with which monitoring will be performed.		Y ☐	N ☐
	(d) For each monitoring parameter identified in the IP, the operating range is recorded and reported in the NCS.		Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

(e)	Records of the monitored parameter (or parameters), as described in (c) and (d), are kept at the required frequency.	Y ☐	N ☐
(f)	Each occurrence when the monitored parameter (or parameters) was outside its parameter range (documented in the NCS) is recorded and reported in the PR.	Y ☐	N ☐
(g)	Each record and report described in (f) includes an explanation of why the measured parameter (or parameters) was outside of its established range.	Y ☐	N ☐
(h)	The total number of hours of routine maintenance of the control device during which the control device does not achieve a 95-percent control efficiency (or 90-percent control efficiency if the control device was installed prior to December 31, 1992) is recorded and reported in the PR.	Y ☐	N ☐
3.	For all control devices, review the following records.		
(a)	A description of the routine maintenance planned for the next 6 months and actually performed in the previous 6 months is recorded and reported in the PR.	Y ☐	N ☐
	Note: Items (b) through (f) do not apply to vapor-collection systems that are operated and maintained under negative pressure.		
(b)	Records are kept of all parts of any vapor-collection system that are designated as either unsafe-to-inspect or difficult-to-inspect, with an explanation of the designation.	Y ☐	N ☐
(c)	For equipment that is designated as difficult to inspect, a written plan is kept that requires inspection of equipment at least once every five years.	Y ☐	N ☐
(d)	For equipment that is designated as unsafe to inspect, a written plan is kept that requires inspection of equipment as frequently as practicable.	Y ☐	N ☐
(e)	For each inspection during which a leak was detected, the following information is recorded and reported.		
	(1) Instrument identification numbers, operator name or initials, and equipment identification information;	Y ☐	N ☐

(continued)

	(2)	The date the leak was detected and the date of the first attempt to repair it;	Y ☐	N ☐
	(3)	Maximum instrument reading after the leak is repaired or determined to be non-repairable;	Y ☐	N ☐
	(4)	Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered;	Y ☐	N ☐
	(5)	Name or initials of person who decides repairs cannot be made without a shutdown;	Y ☐	N ☐
	(6)	Expected date of successful repair if not repaired within 15 days;	Y ☐	N ☐
	(7)	Dates of shutdowns that occur while the equipment is unrepaired; and	Y ☐	N ☐
	(8)	Date of successful repair of the leak.	Y ☐	N ☐
(f)	For each inspection during which no leaks were detected, the following records are kept:			
	(1)	Record that the inspection was performed;	Y ☐	N ☐
	(2)	Date of the inspection; and	Y ☐	N ☐
	(3)	Statement that no leaks were found.	Y ☐	N ☐
(g)	Hourly records are kept of whether the flow indicator in the bypass line was operating and whether flow was detected at any time during the hour, when seal mechanisms are not used <u>and</u>		Y ☐	N ☐
(h)	The time and duration of all periods when flow is diverted or the monitor is not operating are reported in the PR when seal mechanisms are not used [or (i) and (j)].		Y ☐	N ☐
(i)	Records of monthly visual inspections are kept when seal mechanisms are used <u>and</u>		Y ☐	N ☐

(continued)

(j) All periods when the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out are recorded and reported in the PR when seal mechanisms are used. Y ☐ N ☐

Note: In order to be in compliance with provisions for bypass lines either: items (g) and (h) must both be checked "Yes" or both items (i) and (j) must be checked "Yes".

VISUAL INSPECTION

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF

Note: The inspector should not perform the inspection while on the EFR if the roof is below four feet of the top of the tank and if the inspector is not equipped with the proper respiratory protection. Based on the inspector's assessment of the availability of records documenting the design of the control equipment, an adequate inspection without respiratory protection may be performed with a combination of a record inspection and a visual inspection conducted from the platform with the aid of vision-enhancing devices (binoculars).

1. The EFR is resting on the liquid surface of the stored material, unless the EFR is resting on the roof leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed. Y ☐ N ☐

2. The external floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid). Y ☐ N ☐

3. There is a secondary seal installed above the primary seal.[h] Y ☐ N ☐

4. Inspect the secondary seal.[h]

   (a) The secondary seal is continuous and completely covers the annular space between the EFR and the vessel wall. Y ☐ N ☐

   (b) There are no holes, tears, or other openings in the seal or seal fabric. Y ☐ N ☐

   (c) There are no visible gaps between the seal and the wall of the storage vessel, except as specified in (e)(1) and (e)(2). Y ☐ N ☐

   (d) The seal is not detached from the floating deck. Y ☐ N ☐

(continued)

	(e)	Perform seal gap measurement of the secondary seal as specified in §63.120(b)(1) through (b)(4) of the HON storage provisions.			
		(1) The accumulated area of gaps between the vessel wall and the secondary seal does not exceed 21.2 cm^2 per meter of vessel diameter.		Y ☐	N ☐
		(2) The maximum gap width between the vessel wall and the seal does not exceed 1.27 cm.		Y ☐	N ☐
5.	Inspect the primary seal.[h]				
	(a)	The primary seal is either a metallic shoe seal or a liquid-mounted seal.[h]		Y ☐	N ☐
	(b)	The primary seal forms a continuous closure that completely covers the annular space between the wall of the storage vessel and the edge of the EFR, except as described in (f)(1) and (f)(2).		Y ☐	N ☐
	(c)	There are no holes, tears, or other openings in the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used).		Y ☐	N ☐
	(d)	If the primary seal is a metallic shoe seal:			
		(1) The lower end of the metallic shoe send extends into the stored liquid (no specific distance);		Y ☐	N ☐
		(2) The upper end of the metallic shoe seal extends a minimum vertical distance of 61 cm above the stored liquid surface; and		Y ☐	N ☐
		(3) There is a flexible coated fabric that spans the space between the metal shoe and the vessel wall.		Y ☐	N ☐
	(e)	If the primary seal is a liquid-mounted seal, the seal is in contact with the liquid between the wall of the storage vessel and the EFR.		Y ☐	N ☐
	(f)	Perform seal gap measurements of the primary seal as specified in §63.120(b)(1) through (b)(4) of the HON storage provisions.			
		(1) The accumulated area of gaps between the vessel wall and the primary seal does not exceed 212 cm^2 per meter of vessel diameter.		Y ☐	N ☐

(continued)

	(2)	The maximum gap width between the vessel wall and the seal does not exceed 3.81 cm.	Y ☐	N ☐
6.	Inspect deck openings.			
	(a)	If the EFR is non-contact, then each opening in the floating roof, except automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[i]	Y ☐	N ☐
	(b)	Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is equipped with a gasketed cover, seal, or lid which forms a vapor-tight seal.	Y ☐	N ☐
	(c)	Each gasketed cover, seal, or lid on any opening in the EFR is closed, unless the cover or lid must be open for access.	Y ☐	N ☐
	(d)	Covers on each access hatch and gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(e)	The gasket on each cover, seal, or lid described in (b) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
7.	Inspect automatic bleeder vents.			
	(a)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(b)	Automatic bleeder vents are gasketed.	Y ☐	N ☐
	(c)	The gasket on the automatic bleeder vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
8.	Inspect rim space vents.			
	(a)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(b)	Rim space vents are gasketed.	Y ☐	N ☐
	(c)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
9.	Each roof drain is covered with a slotted membrane fabric that covers at least 90 percent of the area of the opening.		Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

10.	Each unslotted guide pole well has either a gasketed sliding cover or a flexible fabric sleeve seal.	Y ☐	N ☐
11.	Each unslotted guide pole shall have on the end of the pole a gasketed cap which is closed at all times except when gauging the liquid level or taking liquid samples.	Y ☐	N ☐
12.	Each slotted guide pole well is equipped with the following equipment: (1) a gasketed sliding cover or a flexible fabric sleeve seal, and (2) a gasketed float inside the guide pole or other control device which closes off the liquid surface from the atmosphere.	Y ☐	N ☐
13.	Each gauge hatch/sample well has a gasketed cover which is closed (except when the hatch or well must be open for access).	Y ☐	N ☐
14.	All of the gaskets described in 10 through 13 close off the liquid surface from the atmosphere.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS AN INTERNAL FLOATING ROOF

Note: The inspector should be advised of the hazards of inspecting an internal floating roof vessel that contains a liquid hazardous air pollutant (HAP). An inspector may perform an external visual inspection of a storage vessel at any time (i.e., the vessel does not need to be taken out of service). However, the inspector will need to have proper respiratory protection before opening the roof hatch to visually inspect, from the fixed roof, the floating deck and seal. An inspector may perform the more thorough internal inspection only when the vessel has been taken out of service (i.e., emptied, degassed and cleaned). Unless a vessel is taken out of service more frequently than is required by the HON, this internal inspection can only take place once every ten years, during those 30 days after which the State Agency has received notice that the vessel has been emptied and degassed and will subsequently be refilled. The inspector should never enter a storage vessel to inspect the IFR without first consulting documents that address the safety issues to consider while entering a confined space and while inspecting an IFR that contains HAP (e.g., the EPA document "Confined Space Safety Document for Conducting NESHAP Compliance Inspections of Benzene Storage Tanks.")

1. External Visual Inspection

(a)	The IFR is resting on the liquid surface of the stored material, unless the IFR is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)	The IFR is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐

(continued)

	(c)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).			
		(1)	The seal is not detached from the IFR.	Y ☐	N ☐
		(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
		(3)	There are no visible gaps between the seal and the wall of the storage vessel.	Y ☐	N ☐
2.	Internal Visual Inspection				
	(a)	The IFR is resting on the liquid surface of the stored material, unless the IFR is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.		Y ☐	N ☐
	(b)	The IFR is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).		Y ☐	N ☐
	(c)	The IFR is equipped with one of the following closure devices, between the wall of the storage vessel and the edge of the IFR: (1) a liquid-mounted seal, (2) a metallic shoe seal, or (3) two seals (i.e., a primary and secondary seal), each of which forms a continuous closure that completely covers the annular space between the wall of the storage vessel and the edge of the IFR.[j]		Y ☐	N ☐
	(d)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).			
		(1)	The seal is not detached from the IFR.	Y ☐	N ☐
		(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
		(3)	There are no visible gaps between the seal and the wall of the storage vessel.	Y ☐	N ☐
	(e)	Inspect deck openings.			
		(1)	If the IFR is non-contact, then each opening in the floating roof, except for automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[i]	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

	(2)	Except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains, each opening in the IFR is equipped with a gasketed cover or lid.[k]	Y ☐	N ☐
	(3)	Each cover or lid on any opening in the IFR is closed, unless the cover or lid is open for access.	Y ☐	N ☐
	(4)	Covers on each access hatch and automatic gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(5)	The gasket on each cover or lid described in (3) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(f)	Inspect automatic bleeder vents.			
	(1)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(2)	Each automatic bleeder vent is gasketed.[k]	Y ☐	N ☐
	(3)	The gasket on each automatic bleeder vent closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(g)	Inspect rim space vents.			
	(1)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(2)	Rim space vents are gasketed.[k]	Y ☐	N ☐
	(3)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
(h)	Each, sample well (i.e., each penetration of the IFR for the purpose of sampling), has a slit fabric cover that covers at least 90 percent of the opening.[k]		Y ☐	N ☐
(i)	Each penetration of the IFR that allows for passage of a ladder has a gasketed sliding cover.[k]		Y ☐	N ☐
(j)	Each penetration of the IFR that allows for passage of a column supporting the fixed roof has either a flexible fabric sleeve seal or a gasketed sliding cover.[k]		Y ☐	N ☐

(continued)

(k)	The gaskets described in (i) and (j) close off the liquid surface to the atmosphere.	Y ☐	N ☐
(l)	If a flexible fabric sleeve seal is used as described in (j), the fabric sleeve is free of defects (i.e., free of holes, tears, or gaps).	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF CONVERTED TO AN INTERNAL FLOATING ROOF VESSEL

Note: The inspector should be advised of the hazards of inspecting an external floating roof vessel converted to an internal floating roof vessel that contains a liquid hazardous air pollutant (HAP). An inspector may perform an external visual inspection of a storage vessel at any time (i.e., the vessel does not need to be taken out of service). However, the inspector will need to have proper respiratory protection before opening the roof hatch to visually inspect, from the fixed roof, the floating deck and seal. An inspector may perform the more thorough internal inspection only when the vessel has been taken out of service (i.e., emptied, degassed and cleaned). Unless a vessel is taken out of service more frequently than is required by the HON, this internal inspection can only take place once every ten years, during those 30 days after which the State Agency has received notice that the vessel has been emptied and degassed and will subsequently be refilled. The inspector should never enter a storage vessel to inspect the floating roof without first consulting documents that address the safety issues to consider while entering a confined space and while inspecting an external floating roof vessel converted to an internal floating roof vessel that contains HAP (e.g., the EPA document "Confined Space Safety Document for Conducting NESHAP Compliance Inspections of Benzene Storage Tanks.")

1. External Visual Inspection

(a)	The floating roof is resting on the liquid surface of the stored material, unless the floating roof is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)	The floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
(c)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).		
(1)	The seal is not detached from the floating roof.	Y ☐	N ☐
(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

		(3)	There are no visible gaps between the seal and the wall of the storage vessel.	Y ☐	N ☐
2.	Internal Visual Inspection				
	(a)	The floating deck is resting on the liquid surface of the stored material, unless the floating deck is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.		Y ☐	N ☐
	(b)	The floating deck is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).		Y ☐	N ☐
	(c)	The floating deck is equipped with one of the following closure devices, between the wall of the storage vessel and the edge of the floating deck: (1) a liquid-mounted seal, (2) a metallic shoe seal, or (3) two seals (i.e., a primary and secondary seal), each of which forms a continuous closure that completely covers the annular space between the wall of the storage vessel and the edge of the floating deck.[j]		Y ☐	N ☐
	(d)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).			
		(1)	The seal is not detached from the floating deck.	Y ☐	N ☐
		(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
		(3)	There are no visible gaps between the seal and the wall of the storage vessel.	Y ☐	N ☐
	(e)	Inspect deck openings			
		(1)	If the floating deck is non-contact, then each opening in the floating roof, except automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[i]	Y ☐	N ☐
		(2)	Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is equipped with a gasketed cover, seal, or lid which forms a vapor-tight seal.	Y ☐	N ☐

(continued)

	(3)	Each gasketed cover, seal, or lid on any opening in the floating deck is closed, unless the cover or lid must be open for access.	Y ☐	N ☐
	(4)	Covers on each access hatch and gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(5)	The gasket on each cover, seal, or lid described in (2) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(f)	Inspect automatic bleeder vents			
	(1)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(2)	Automatic bleeder vents are gasketed.	Y ☐	N ☐
	(3)	The gaskets on the automatic bleeder vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
(g)	Inspect rim space vents			
	(1)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(2)	Rim space vents are gasketed.	Y ☐	N ☐
	(3)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
(h)	Each roof drain is covered with a slotted membrane fabric that covers at least 90 percent of the area of the opening.		Y ☐	N ☐
(i)	Each unslotted guide pole well has either a gasketed sliding cover or a flexible fabric sleeve seal.		Y ☐	N ☐
(j)	Each unslotted guide pole shall have on the end of the pole a gasketed cap which is closed at all times except when gauging the liquid level or taking liquid samples.		Y ☐	N ☐

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

(k)	Each slotted guide pole well is equipped with the following equipment: (1) a gasketed sliding cover or a flexible fabric sleeve seal, and (2) a gasketed float inside the guide pole or other control device which closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(l)	Each gauge hatch/sample well has a gasketed cover which is closed (except when the hatch or well must be open for access).	Y ☐	N ☐
(m)	All of the gaskets described in (i), (j), (k), and (l) close off the liquid surface from the atmosphere.	Y ☐	N ☐
IF THE CONTROL EQUIPMENT IS A CLOSED VENT SYSTEM (I.E., VAPOR COLLECTION SYSTEM) AND CONTROL DEVICE			
1.	There are no visible gaps, holes, or corrosion spots seen in the ductwork of the vapor collection system.	Y ☐	N ☐
2.	If the control device is a flare, a device for detecting the flame is present.	Y ☐	N ☐
3.	If the control device is not a flare, a device to monitor the parameter (or parameters) specified in the IP is present.	Y ☐	N ☐
4.	A flow indicator is present at the entrance to any bypass line that could divert the vent stream flow away from the control device to the atmosphere <u>or</u> all bypass line valves are sealed in a closed position (e.g., with a car seal or lock-and-key configuration).	Y ☐	N ☐

[a] If an external floating roof has a liquid-mounted or metallic shoe primary seal as of December 31, 1992, a secondary seal is not required until the next emptying and degassing or April 22, 2004, whichever is later. For such storage vessels, measurement of gaps in the primary seal must be conducted once per year until a secondary seal is installed.

[b] PR = Periodic Report

[c] NCS = Notification of Compliance Status

[d] IP = Implementation Plan

[e] If an enclosed combustion device is documented to have a minimum residence time of 0.5 seconds and a minimum temperature of 760^{o}C, then additional documentation is not required.

(continued)

TABLE 7-4. COMPLIANCE CHECKLIST FOR STORAGE VESSELS

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[f] If the control device used to comply with the storage vessel provisions is also used to comply with the process vent, transfer, or wastewater provisions, the performance test required by those provisions is an acceptable substitute for the design evaluation for determining compliance.

[g] A "vapor collection system" is equivalent to a "closed vent system."

[h] If the external floating roof is equipped, as of December 31, 1992, with either: (1) a liquid-mounted primary seal and no secondary seal, (2) a metallic shoe primary seal and no secondary seal, or (3) a vapor mounted primary seal and a secondary seal, then the seal requirement of a liquid-mounted or metallic shoe primary seal and secondary seal does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) April 22, 2004.

[i] If these openings (excluding automatic bleeder vents and rim space vents) did not provide projections below the liquid service as of December 31, 1992, this requirement 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 April 22, 2004.

[j] If the internal floating roof is equipped, as of December 31, 1992, with a single vapor-mounted seal, then the requirement for a liquid-mounted seal or metallic shoe seal or two seals does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) April 22, 2004.

[k] If the internal floating roof did not meet these specifications as of December 15, 1992, 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 April 22, 2004.

NOTE ALL DEFICIENCIES.

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

Complete this form for waste management units. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

I. REVIEW OF RECORDS

A. WASTEWATER TANKS

1.	The occurrence of each semiannual visual inspection for improper work practices is recorded.	Y ☐	N ☐
2.	The occurrence of each semiannual visual inspection for control equipment failures is recorded.	Y ☐	N ☐
3.	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]		
(a)	Date of the inspection.	Y ☐	N ☐
(b)	Identification of the wastewater tank having the failure.	Y ☐	N ☐
(c)	Description of the failure.	Y ☐	N ☐
(d)	Description of the nature of the repair.	Y ☐	N ☐
(e)	Date the repair was made.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF

Review records listed in Table 8-14.

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND A CLOSED-VENT SYSTEM ROUTED TO A CONTROL DEVICE

Review records listed in Tables 8-14 and 8-15.

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF

1.	Review records of Seal Gap Measurements.		
(a)	Records indicate that seal gap measurements were performed annually for the secondary seal and every five years for the primary seal.[b]	Y ☐	N ☐
(b)	When a failure is detected, the date and results of seal gap measurements are submitted in periodic reports, annually for the secondary seal and every five years for the primary seal.	Y ☐	N ☐

(continued)

	(c)	When a failure is detected in the seal(s), the date and results of the visual inspection of the seals (which is performed together with the seal gap measurement) are included in the PR.[a]	Y ☐	N ☐
	(d)	The date of the seal gap measurement, the raw data obtained during the measurement, and the calculations made are recorded.	Y ☐	N ☐
	(e)	The raw data and calculations recorded for seal gap measurements is consistent with the information provided in the PR.	Y ☐	N ☐
	(f)	For each seal gap measurement in a periodic report, there is a report notifying the Administrator of the measurement in advance. If the measurement had been planned, then the report was submitted 30 days in advance of the measurement. If the measurement was not planned, then the report was submitted at least 7 days in advance of the measurement and included an explanation of why the measurement was unplanned.	Y ☐	N ☐
	(g)	If a failure was detected during a seal gap measurement and visual seal inspection, the PR indicated the date and the nature of the repair or the date the wastewater tank was emptied.	Y ☐	N ☐
	(h)	If the report described in (g) documents that the repair was made more than 45 days after the failure was detected, then the next PR includes documentation of the use of up to two 30-day extensions for completing the repair, including identification of the wastewater tank, a description of the failure, documentation that alternate storage capacity was unavailable, a schedule of actions to be taken to repair the control equipment or empty the wastewater tank as soon as possible, and the date the wastewater tank was emptied and the nature of and date the repair was made.	Y ☐	N ☐
2.	Review records of internal visual inspections.			
	(a)	The occurrence of each internal visual inspection is recorded.	Y ☐	N ☐

(continued)

(b)	For each internal visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all wastewater tanks for which failures were detected, (3) a description of those failures, and (4) either the date and nature of the repair or the date the wastewater tank was emptied.	Y ☐	N ☐
(c)	Any repairs performed as described in (b) were completed before the repaired wastewater tank was refilled.	Y ☐	N ☐
(d)	For each internal visual inspection documented in a PR, there is a report notifying the Administrator in advance of the date the inspected wastewater tank would be refilled after the inspection. If the inspection had been planned, the report was submitted 30 days in advance of refilling the wastewater tank. If the inspection was not planned, then the report was submitted at least 7 days in advance of refilling the wastewater tank and included an explanation of why the inspection was unplanned.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND AN INTERNAL FLOATING ROOF

1. Review records of external visual inspections

(a)	The occurrence of each annual external visual inspection is recorded. If the floating roof is equipped with double seals, the source will not have performed this inspection if it chose to perform internal visual inspections once every 5 years instead of performing both annual external visual inspections and internal visual inspections at least once every 10 years. See Item 2 below.	Y ☐	N ☐
(b)	For each annual external visual inspection in which a failure is detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all wastewater tanks for which failures were detected, (3) a description of those failures, and (4) the date and the nature of the repair or the date the wastewater tank was emptied.	Y ☐	N ☐

(continued)

(c)	If the report described in (a) and (b) documents that the repair was made more than 45 days after the failure was detected, then the next PR includes documentation of the use of up to two 30-day extensions for completing the repair and the following information: identification of the wastewater tank, a description of the failure, documentation that alternate storage capacity was unavailable, a schedule of actions to be taken to repair the control equipment or empty the wastewater tank as soon as possible, and the date the wastewater tank was emptied and the nature of and date the repair was made.	Y ☐	N ☐
2.	Review records of internal visual inspections.		
(a)	The occurrence of each internal visual inspection is recorded. If the floating roof is equipped with double seals and the source chose not to perform annual external inspections [described in item 1(b)], this inspection will be performed, recorded, and reported at least every 5 years.	Y ☐	N ☐
(b)	For each internal visual inspection in which a failure was detected, the following information is submitted in the PR: (1) the date of the inspection, (2) identification of all wastewater tanks for which failures were detected, (3) a description of those failures, and (4) the date and nature of the repair.	Y ☐	N ☐
(c)	Any repairs performed as described in (b) were completed before the repaired wastewater tank was refilled.	Y ☐	N ☐
(d)	For each internal visual inspection documented in a PR, there is a report notifying the Administrator in advance of the date the inspected wastewater tank would be refilled after the inspection. If the inspection had been planned, the report was submitted 30 days in advance of refilling the wastewater tank. If the inspection was not planned, then the report was submitted at least 7 days in advance of refilling the wastewater tank and included an explanation of why the inspection was unplanned.	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

IF THE CONTROL EQUIPMENT IS A CLOSED VENT SYSTEM AND CONTROL DEVICE

Review records listed in Tables 8-14 and 8-15.

B.	SURFACE IMPOUNDMENTS		
1.	The occurrence of each semiannual visual inspection for improper work practices is recorded.	Y ☐	N ☐
2.	The occurrence of each semiannual visual inspection for control equipment failures is recorded.	Y ☐	N ☐
3.	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]		
	(a) Date of the inspection.	Y ☐	N ☐
	(b) Identification of the surface impoundment having the failure.	Y ☐	N ☐
	(c) Description of the failure.	Y ☐	N ☐
	(d) Description of the nature of the repair.	Y ☐	N ☐
	(e) Date the repair was made.	Y ☐	N ☐
	[Note: Other recordkeeping requirements may be listed in Tables 8-14 and 8-15.]		
C.	CONTAINERS		
1.	A record of the capacity of each container at the facility is maintained.	Y ☐	N ☐
2.	The occurrence of each semiannual visual inspection for improper work practices is recorded.	Y ☐	N ☐
3.	The occurrence of each semiannual visual inspection for control equipment failures is recorded.	Y ☐	N ☐
4.	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]		
	(a) Date of the inspection.	Y ☐	N ☐
	(b) Identification of the container having the failure.	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

	(c) Description of the failure.	Y ☐	N ☐
	(d) Description of the nature of the repair.	Y ☐	N ☐
	(e) Date the repair was made.	Y ☐	N ☐
	[Note: Other recordkeeping requirements may be listed in Tables 8-14 and 8-15.]		
D.	**INDIVIDUAL DRAIN SYSTEMS**		
1.	If the control equipment is a cover and a closed-vent system routed to a control device:		
	(a) The occurrence of each semiannual visual inspection for improper work practices is recorded.	Y ☐	N ☐
	(b) The occurrence of each semiannual visual inspection for control equipment failures is recorded.	Y ☐	N ☐
	(c) For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]		
	(1) Date of the inspection.	Y ☐	N ☐
	(2) Identification of the individual drain system having the failure.	Y ☐	N ☐
	(3) Description of the failure.	Y ☐	N ☐
	(4) Description of the nature of the repair.	Y ☐	N ☐
	(5) Date the repair was made.	Y ☐	N ☐
	[Note: Other recordkeeping requirements may be listed in Tables 8-14 and 8-15.]		
2.	For drains and junction boxes, as an alternative to Item 1:		
	(a) A record documents the occurrence of each semiannual inspection of drains to ensure that caps or plugs are in place and properly installed [<u>or</u> (b)]	Y ☐	N ☐
	(b) A record documents the occurrence of each semiannual verification of water supply to the drain.	Y ☐	N ☐
	(c) A record documents the occurrence of each semiannual inspection of junction boxes to ensure that a cover is in place and has a tight seal around the edge.	Y ☐	N ☐

(continued)

	(d) A record documents the occurrence of each semiannual inspection of the unburied portion of each sewer line for indication of cracks or gaps.	Y ☐	N ☐
E.	**OIL-WATER SEPARATORS**		
1.	The occurrence of each semiannual visual inspection for improper work practices is recorded.	Y ☐	N ☐
2.	The occurrence of each semiannual visual inspection for control equipment failures is recorded.	Y ☐	N ☐
3.	For each inspection during which a control equipment failure was identified, the following were recorded and reported in the next PR[a]		
	(a) Date of the inspection.	Y ☐	N ☐
	(b) Identification of the oil-water separator having the failure.	Y ☐	N ☐
	(c) Description of the failure.	Y ☐	N ☐
	(d) Description of the nature of the repair.	Y ☐	N ☐
	(e) Date the repair was made.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND A CLOSED-VENT SYSTEM ROUTED TO A CONTROL DEVICE

Review records listed in Tables 8-14 and 8-15.

IF THE CONTROL EQUIPMENT IS A FLOATING ROOF

1.	Records indicate that seal gap measurements were performed annually for the secondary seal and every five years for the primary seal.	Y ☐	N ☐
2.	When a failure is detected, the date and results of seal gap measurements are submitted in periodic reports, annually for the secondary seal and every five years for the primary seal.	Y ☐	N ☐
3.	When a control equipment failure is detected in the seal(s), the date and results of the visual inspection of the seals (which is performed together with the seal gap measurement) are included in the PR.[a]	Y ☐	N ☐

(continued)

4.	The date of the seal gap measurement, the raw data obtained during the measurement, and the calculations made are recorded.	Y ☐	N ☐
5.	The raw data and calculations recorded for seal gap measurements is consistent with the information provided in the PR.	Y ☐	N ☐
6.	If a failure was detected during a seal gap measurement and visual seal inspection, the PR indicated the date and the nature of the repair or the date the wastewater tank was emptied.	Y ☐	N ☐

II. VISUAL INSPECTION

A. WASTEWATER TANKS

IF THE CONTROL EQUIPMENT IS A FIXED ROOF

1.	All openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair). [Note: The inspector should also check the fixed roof for leaks in accordance with the procedures specified in Table 8-14.]	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF WITH A CLOSED-VENT SYSTEM ROUTED TO A CONTROL DEVICE

1.	All openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair). [Note: The inspector should also check the fixed roof and closed-vent system for leaks in accordance with the procedures specified in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

IF THE CONTROL EQUIPMENT IS AN EXTERNAL FLOATING ROOF

Note: The inspector should not perform the inspection while on the EFR if the roof is below four feet of the top of the tank and if the inspector is not equipped with the proper respiratory protection. Based on the inspector's assessment of the availability of records documenting the design of the control equipment, an adequate inspection without respiratory protection may be performed with a combination of a record inspection and a visual inspection conducted from the platform with the aid of vision-enhancing devices (binoculars).

1.	The EFR is resting on the liquid surface of the stored material, unless the EFR is resting on the roof leg supports because the wastewater tank has just been emptied and degassed or the tank is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
2.	The external floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
3.	There is a secondary seal installed above the primary seal.[b]	Y ☐	N ☐
4.	Inspect the secondary seal.[b]		
(a)	The secondary seal is continuous and completely covers the annular space between the EFR and the tank wall.	Y ☐	N ☐
(b)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
(c)	There are no visible gaps between the seal and the wall of the wastewater tank, except as specified in (e)(1) and (e)(2).	Y ☐	N ☐
(d)	The seal is not detached from the floating deck.	Y ☐	N ☐
(e)	Perform seal gap measurement of the secondary seal as specified in §63.120(b)(2)(i) through (b)(2)(iii) and §63.120(b)(4) of the HON storage provisions.		
(1)	The accumulated area of gaps between the tank wall and the secondary seal does not exceed 21.2 cm^2 per meter of tank diameter.	Y ☐	N ☐
(2)	The maximum gap width between the tank wall and the seal does not exceed 1.27 cm.	Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

5.	Inspect the primary seal.[b]			
	(a)	The primary seal is either a metallic shoe seal or a liquid-mounted seal.[b]	Y □	N □
	(b)	The primary seal forms a continuous closure that completely covers the annular space between the wall of the wastewater tank and the edge of the EFR, except as described in (f)(1) and (f)(2).	Y □	N □
	(c)	There are no holes, tears, or other openings in the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used).	Y □	N □
	(d)	If the primary seal is a metallic shoe seal:		
		(1) The lower end of the metallic shoe send extends into the stored liquid (no specific distance);	Y □	N □
		(2) The upper end of the metallic shoe seal extends a minimum vertical distance of 61 cm above the stored liquid surface; and	Y □	N □
		(3) There is a flexible coated fabric that spans the space between the metal shoe and the tank wall.	Y □	N □
	(e)	If the primary seal is a liquid-mounted seal, the seal is in contact with the liquid between the wall of the wastewater tank and the EFR.	Y □	N □
	(f)	Perform seal gap measurements of the primary seal as specified in §63.120(b)(2)(i) through (b)(2)(iii) and §63.120(b)(4) of the HON storage provisions.		
		(1) The accumulated area of gaps between the tank wall and the primary seal does not exceed 212 cm^2 per meter of tank diameter.	Y □	N □
		(2) The maximum gap width between the tank wall and the seal does not exceed 3.81 cm.	Y □	N □
6.	Inspect deck openings.			
	(a)	If the EFR is non-contact, then each opening in the floating roof, except automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[c]	Y □	N □

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

	(b)	Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is equipped with a gasketed cover, seal, or lid which forms a vapor-tight seal.	Y ☐	N ☐
	(c)	Each gasketed cover, seal, or lid on any opening in the EFR is closed, unless the cover or lid must be open for access.	Y ☐	N ☐
	(d)	Covers on each access hatch and gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(e)	The gasket on each cover, seal, or lid described in (b) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
7.	Inspect automatic bleeder vents.			
	(a)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(b)	Automatic bleeder vents are gasketed.	Y ☐	N ☐
	(c)	The gasket on the automatic bleeder vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
8.	Inspect rim space vents.			
	(a)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(b)	Rim space vents are gasketed.	Y ☐	N ☐
	(c)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
9.	Each roof drain is covered with a slotted membrane fabric that covers at least 90 percent of the area of the opening.		Y ☐	N ☐
10.	Each unslotted guide pole well has either a gasketed sliding cover or a flexible fabric sleeve seal.		Y ☐	N ☐
11.	Each unslotted guide pole shall have on the end of the pole a gasketed cap which is closed at all times except when gauging the liquid level or taking liquid samples.		Y ☐	N ☐

(continued)

12.	Each slotted guide pole well is equipped with the following equipment: (1) a gasketed sliding cover or a flexible fabric sleeve seal, and (2) a gasketed float inside the guide pole or other control device which closes off the liquid surface from the atmosphere.	Y ☐	N ☐
13.	Each gauge hatch/sample well has a gasketed cover which is closed (except when the hatch or well must be open for access).	Y ☐	N ☐
14.	All of the gaskets described in 10 through 13 close off the liquid surface from the atmosphere.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND AN INTERNAL FLOATING ROOF

Note: The inspector should be advised of the hazards of inspecting an internal floating roof vessel that contains a liquid hazardous air pollutant (HAP). An inspector may perform an external visual inspection of a wastewater tank at any time (i.e., the tank does not need to be taken out of service). However, the inspector will need to have proper respiratory protection before opening the roof hatch to visually inspect, from the fixed roof, the floating deck and seal. An inspector may perform the more thorough internal inspection only when the tank has been taken out of service (i.e., emptied, degassed and cleaned). Unless a vessel is taken out of service more frequently than is required by the HON, this internal inspection can only take place once every ten years, during those 30 days after which the State Agency has received notice that the tank has been emptied and degassed and will subsequently be refilled. The inspector should never enter a wastewater tank to inspect the IFR without first consulting documents that address the safety issues to consider while entering a confined space and while inspecting an IFR that contains HAP (e.g., the EPA document "Confined Space Safety Document for Conducting NESHAP Compliance Inspections of Benzene Storage Tanks.")

1. External Visual Inspection

(a)	The IFR is resting on the liquid surface of the stored material, unless the IFR is resting on the leg supports because the vessel has just been emptied and degassed or the vessel is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)	The IFR is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
(c)	Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).		
	(1) The seal is not detached from the IFR.	Y ☐	N ☐

(continued)

	(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(3)	There are no visible gaps between the seal and the wall of the wastewater tank.	Y ☐	N ☐
2.		Internal Visual Inspection		
(a)		The IFR is resting on the liquid surface of the stored material, unless the IFR is resting on the leg supports because the tank has just been emptied and degassed or the tank is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
(b)		The IFR is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
(c)		The IFR is equipped with one of the following closure devices, between the wall of the wastewater tank and the edge of the IFR: (1) a liquid-mounted seal, (2) a metallic shoe seal, or (3) two seals (i.e., a primary and secondary seal), each of which forms a continuous closure that completely covers the annular space between the wall of the wastewater tank and the edge of the IFR.[d]	Y ☐	N ☐
(d)		Inspect the seal (i.e., if a single-seal system is used, inspect the single seal, and if a double-seal system is used, inspect both the primary and secondary seals).		
	(1)	The seal is not detached from the IFR.	Y ☐	N ☐
	(2)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
	(3)	There are no visible gaps between the seal and the wall of the wastewater tank.	Y ☐	N ☐
(e)		Inspect deck openings.		
	(1)	If the IFR is non-contact, then each opening in the floating roof, except for automatic bleeder vents and rim space vents, provides a projection below the stored liquid's surface.[c]	Y ☐	N ☐
	(2)	Except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains, each opening in the IFR is equipped with a gasketed cover or lid.[e]	Y ☐	N ☐

(continued)

	(3)	Each cover or lid on any opening in the IFR is closed, unless the cover or lid is open for access.	Y ☐	N ☐
	(4)	Covers on each access hatch and automatic gauge float well are bolted or fastened so as to be air-tight when closed.	Y ☐	N ☐
	(5)	The gasket on each cover or lid described in (3) closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(f)	Inspect automatic bleeder vents.			
	(1)	Automatic bleeder vents are closed, unless the roof is being floated off or is being landed on the roof leg supports.	Y ☐	N ☐
	(2)	Each automatic bleeder vent is gasketed.[e]	Y ☐	N ☐
	(3)	The gasket on each automatic bleeder vent closes off the liquid surface from the atmosphere.	Y ☐	N ☐
(g)	Inspect rim space vents.			
	(1)	Rim space vents are closed, except when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.	Y ☐	N ☐
	(2)	Rim space vents are gasketed.[e]	Y ☐	N ☐
	(3)	The gaskets on the rim space vents close off the liquid surface from the atmosphere.	Y ☐	N ☐
(h)	Each, sample well (i.e., each penetration of the IFR for the purpose of sampling), has a slit fabric cover that covers at least 90 percent of the opening.[e]		Y ☐	N ☐
(i)	Each penetration of the IFR that allows for passage of a ladder has a gasketed sliding cover.[e]		Y ☐	N ☐
(j)	Each penetration of the IFR that allows for passage of a column supporting the fixed roof has either a flexible fabric sleeve seal or a gasketed sliding cover.[e]		Y ☐	N ☐
(k)	The gaskets described in (i) and (j) close off the liquid surface to the atmosphere.		Y ☐	N ☐
(l)	If a flexible fabric sleeve seal is used as described in (j), the fabric sleeve is free of defects (i.e., free of holes, tears, or gaps).		Y ☐	N ☐

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

B.	**SURFACE IMPOUNDMENTS**		
1.	Access hatches and all other openings are closed and gasketed when not in use.	Y ☐	N ☐
2.	All control equipment is functioning properly (e.g., seals, gaskets, joints, lids, covers, and doors are not cracked, gapped, or broken).	Y ☐	N ☐
	[Note: The inspector should also check the cover and closed-vent system for leaks in accordance with the procedures in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]		
C.	**CONTAINERS**		
1.	For containers with $0.1 \leq$ capacity ≤ 0.42 m^3.		
	(a) The container meets existing DOT specifications and testing requirements.	Y ☐	N ☐
	(b) The cover and all openings are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during filling).	Y ☐	N ☐
2.	For containers with capacity >0.42 m^3.		
	(a) The container is equipped with a submerged fill pipe that does not extend more than 6 inches or within two fill pipe diameters of the bottom of the container while the container is being filled.	Y ☐	N ☐
	(b) The cover and all openings, except those required for the submerged fill pipe and for venting to prevent damage or deformation of the container or cover, are closed and sealed.	Y ☐	N ☐
3.	Whenever a container with capacity ≥ 0.1 m^3 is open, it is located within an enclosure that is routed by a closed-vent system to a control device.	Y ☐	N ☐
4.	All control equipment is functioning properly (e.g., seals, gaskets, joints, lids, covers, and doors are not cracked, gapped, or broken).	Y ☐	N ☐

(continued)

[Note: The inspector should also check the cover and closed-vent system for leaks in accordance with the procedures in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]

D.	INDIVIDUAL DRAIN SYSTEMS			
1.	If the control equipment is a cover and a closed-vent system routed to a control device:			
	(a)	The individual drain system is designed and operated to segregate the vapors within the system from other drain systems and the atmosphere through means such as water seals.	Y ☐	N ☐
	(b)	The cover and all openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair).	Y ☐	N ☐
	(c)	All control equipment is functioning properly (e.g., seals, gaskets, joints, lids, covers, and doors are not cracked, gapped, or broken).	Y ☐	N ☐
	[Note: The inspector should also check the closed-vent system for leaks in accordance with the procedures specified in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]			
2.	For drains and junction boxes, as an alternative to item 1:			
	(a)	Each drain is equipped with either water seal controls (e.g., p-trap, s-trap) or a tightly-sealed cap or plug.	Y ☐	N ☐
	(b)	There is water in the p-trap or s-trap.	Y ☐	N ☐
	(c)	If a water seal is used on a drain hub receiving a Group 1 process wastewater stream, the drain pipe discharging the wastewater extends below the liquid surface in the water seal [or (d)].	Y ☐	N ☐
	(d)	A flexible cap (or other enclosure which restricts wind motion) is installed that encloses the space between the drain discharging the wastewater and the drain hub receiving the wastewater.	Y ☐	N ☐

(continued)

(e)	Each junction box is equipped with a cover, and, if vented, is equipped with a vent pipe.	Y ☐	N ☐
(f)	Any vent pipe is at least 90 centimeters in length and shall not exceed 10.2 centimeters in diameter.	Y ☐	N ☐
(g)	Junction box covers have tight seals around the edge.	Y ☐	N ☐
(h)	Junction box covers are kept in place at all times except during inspection and maintenance.	Y ☐	N ☐
(i)	Each junction box is equipped with a system (e.g., water seal controls) to prevent the flow of organic HAP vapors from the vent pipe to the atmosphere during normal operation.	Y ☐	N ☐
(j)	The vent pipe is connected to a closed vent system that meets the requirements in Table 8-14 and is routed to a control device that meets the requirements in Table 8-15.	Y ☐	N ☐
(k)	Each sewer line is not open to the atmosphere and is covered or enclosed so that no visible gaps or cracks in joints, seals, or other emission interfaces exist.	Y ☐	N ☐

E. OIL-WATER SEPARATORS

IF THE CONTROL EQUIPMENT IS A FIXED ROOF AND A CLOSED VENT SYSTEM ROUTED TO A CONTROL DEVICE

1.	All openings (e.g., access hatches, sampling ports, and gauge wells) are maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) when not in use (e.g., during sampling, equipment maintenance, inspection, or repair).	Y ☐	N ☐
2.	All control equipment is functioning properly (e.g., seals, gaskets, joints, lids, covers, and doors are not cracked, gapped, or broken).	Y ☐	N ☐

[Note: The inspector should also check the fixed roof and closed-vent system for leaks in accordance with the procedures specified in Table 8-14 and inspect the control device in accordance with the procedures in Table 8-15.]

(continued)

TABLE 8-12. COMPLIANCE CHECKLIST FOR WASTE MANAGEMENT UNITS

IF THE CONTROL EQUIPMENT IS A FLOATING ROOF

Note: The inspector should not perform the inspection while on the floating roof if the roof is below four feet of the top of the separator and if the inspector is not equipped with the proper respiratory protection. Based on the inspector's assessment of the availability of records documenting the design of the control equipment, an adequate inspection without respiratory protection may be performed with a combination of a record inspection and a visual inspection conducted from the platform with the aid of vision-enhancing devices (binoculars).

1.	The floating roof is resting on the liquid surface of the stored material, unless the floating roof is resting on the roof leg supports because the oil-water separator has just been emptied and degassed or the tank is partially or completely emptied before being subsequently refilled or degassed.	Y ☐	N ☐
2.	The floating roof is in good condition (i.e., free of defects such as corrosion and pools of standing liquid).	Y ☐	N ☐
3.	There is a secondary seal installed above the primary seal.	Y ☐	N ☐
4.	Inspect the secondary seal.		
(a)	The secondary seal is continuous and completely covers the annular space between the floating roof and the separator wall.	Y ☐	N ☐
(b)	There are no holes, tears, or other openings in the seal or seal fabric.	Y ☐	N ☐
(c)	There are no visible gaps between the seal and the wall of the oil-water separator, except as specified in (e)(1) and (e)(2).	Y ☐	N ☐
(d)	The seal is not detached from the floating deck.	Y ☐	N ☐
(e)	Perform seal gap measurement of the secondary seal as specified in §60.696(d)(1) of the standards of performance for VOC emissions.		
(1)	The total gap area between the separator wall and the secondary seal does not exceed 6.7 cm^2 per meter (0.32 in^2/ft) of the separator wall perimeter.	Y ☐	N ☐
(2)	The maximum gap width between the separator wall and the seal does not exceed 1.3 cm (0.5 in) at any point.	Y ☐	N ☐

(continued)

5.	Inspect the primary seal.		
	(a) The primary seal is a liquid-mounted seal.	Y ☐	N ☐
	(b) The primary seal forms a continuous closure that completely covers the annular space between the wall of the oil-water separator and the edge of the floating roof, except as described in (f)(1) and (f)(2).	Y ☐	N ☐
	(c) There are no holes, tears, or other openings in the seal fabric, seal envelope, or shoe (if a metallic shoe seal is used).	Y ☐	N ☐
	(d) If the primary seal is a liquid-mounted seal (e.g., foam or liquid-filled seal), the seal is in contact with the liquid between the wall of the oil-water separator and the floating roof.	Y ☐	N ☐
	(e) The seal is not detached from the floating roof.	Y ☐	N ☐
	(f) Perform seal gap measurements of the primary seal as specified in §60.696(d)(1) of the standards of performance for VOC emissions.		
	(1) The total gap area between the separator wall and the primary seal does not exceed 67 cm^2 per meter (3.2 in^2/ft) of separator wall perimeter.	Y ☐	N ☐
	(2) The maximum gap width between the separator wall and the seal does not exceed 3.8 cm (1.5 in) at any point.	Y ☐	N ☐
6.	If the floating roof is equipped with one or more emergency roof drains for removal of stormwater, each emergency roof drain is fitted with a slotted membrane fabric cover that covers at least 90 percent of the drain opening area or a flexible fabric sleeve seal.	Y ☐	N ☐
7.	All openings in the floating roof are equipped with a gasketed cover, seal, or lid, which is maintained in a closed position at all times, except during inspection and maintenance.	Y ☐	N ☐
8.	No gaskets, joints, lids, covers, or doors are cracked, gapped, or broken.	Y ☐	N ☐

[a] PR = Periodic Report

(continued)

[b] If the external floating roof is equipped, as of December 31, 1992, with either: (1) a liquid-mounted primary seal and no secondary seal, or (2) a vapor mounted primary seal and a secondary seal, then the seal requirement of a liquid-mounted or metallic shoe primary seal and secondary seal does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) April 22, 2004. For such wastewater tanks, measurements of gaps in the primary seal must be conducted once per year until a secondary seal is installed.

[c] If these openings (excluding automatic bleeder vents and rim space vents) did not provide projections below the liquid service as of December 31, 1992, this requirement 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 April 22, 2004.

[d] If the internal floating roof is equipped, as of December 31, 1992, with a single vapor-mounted seal, then the requirement for a liquid-mounted seal or metallic shoe seal or two seals does not apply until the earlier of the following dates: (1) the next time the storage vessel is emptied and degassed, or (2) April 22, 2004.

[e] If the internal floating roof did not meet these specifications as of December 15, 1992, 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 April 22, 2004.

NOTE ALL DEFICIENCIES.

TABLE 8-13. COMPLIANCE CHECKLIST FOR TREATMENT PROCESSES

Complete this form for treatment processes. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

Note: The HON does not specify a particular treatment process that must be used to achieve compliance. The source may use any waste management unit or treatment process to achieve compliance with one of the control options (or a combination of control options). If the source elects to use a design steam stripper, the HON does specify operating parameters in §63.138(g) of Subpart G. These operating parameters are included in this checklist.

TREATMENT PROCESS ____________________

DATE OF STARTUP ______________________

I. REVIEW OF RECORDS

FOR ALL TREATMENT PROCESSES

1a.	Identification and description of the treatment process, identification of the wastewater streams treated by the process, and identification of monitoring parameters were included in the NCS.[a]	Y ☐	N ☐
1b.	If a treatment process other than the design steam stripper is used, the request to monitor site-specific parameters was included in the Implementation Plan or operating permit application.	Y ☐	N ☐
2.	Documentation to establish a site-specific range was submitted in the NCS or operating permit application.	Y ☐	N ☐
3.	Results of the initial measurement of the parameters approved by the Administrator were submitted in the NCS or operating permit application.	Y ☐	N ☐
4.	Records of a design evaluation and supporting documentation that includes operating characteristics were included in the NCS [or #5].	Y ☐	N ☐
5.	Records of performance tests conducted using test methods and procedures specified in §63.145 of Subpart G were included in the NCS.	Y ☐	N ☐

(continued)

TABLE 8-13. COMPLIANCE CHECKLIST FOR TREATMENT PROCESSES

[Note: The records described in #4 and #5 are not required if the wastewater stream or residual is discharged to: (1) a hazardous waste incinerator permitted under 40 CFR Part 270 and complying with 40 CFR Part 264 Subpart O; (2) an industrial furnace or boiler burning hazardous waste that is permitted under 40 CFR Part 270 and complying with 40 CFR Part 266, Subpart H; (3) an industrial furnace or boiler burning hazardous waste for which the owner or operator has certified compliance with the interim status requirements of 40 CFR Part 266 Subpart H; or (4) an underground injection well permitted under 40 CFR Part 270 or 40 CFR Part 144 and complying with 40 CFR Part 122.]

6.	Records described in #4 and #5 demonstrate that the level of treatment required by §63.138(b) and/or (c) is achieved.		Y ☐	N ☐
7.	Results of visual inspections, in which a control equipment failure was identified, were reported in the PR[b], including:			
	(a)	Identification of the treatment process,	Y ☐	N ☐
	(b)	Description of the failure,	Y ☐	N ☐
	(c)	Description of the nature of the repair, and	Y ☐	N ☐
	(d)	Date the repair was made.	Y ☐	N ☐
8.	For each parameter approved by the permitting authority that is required to be monitored continuously:			
	(a)	Records of the daily average value of the parameter are kept.	Y ☐	N ☐
	(b)	Each operating day, when the daily average value of the parameter was outside the site-specific range established in the NCS (i.e., a monitoring parameter excursion is detected), or when insufficient monitoring data are collected, they are reported in the PR.	Y ☐	N ☐
9.	For each treatment process that receives a residual removed from a Group 1 wastewater stream, the following were submitted in the NCS:			
	(a)	Identification of treatment process;	Y ☐	N ☐
	(b)	Identification and description of the residual;	Y ☐	N ☐
	(c)	Identification of wastewater stream from which residual was removed;	Y ☐	N ☐

(continued)

TABLE 8-13. COMPLIANCE CHECKLIST FOR TREATMENT PROCESSES

		Y	N
(d)	Fate of residual;	Y ☐	N ☐
(e)	Identification and description of control device (if any) used to destroy the HAP mass in the residual by 99 percent; and	Y ☐	N ☐
(f)	Documentation of the 99 percent control efficiency of the device in (e).	Y ☐	N ☐
10.	Records show that residuals are in compliance with control options in §63.138(h) of Subpart G.	Y ☐	N ☐
FOR DESIGN STEAM STRIPPERS			
1.	Records are kept of the steam flow rate, wastewater feed mass flow rate, and wastewater feed temperature.	Y ☐	N ☐
2.	If the parameters in #1 are not monitored, the facility has documentation that they applied for and received approval to monitor alternative parameter(s) and are performing the required recordkeeping and reporting.	Y ☐	N ☐
	[Note: If #2 is checked "Yes", the facility is in compliance even if number 1 is checked "No".]		
FOR BIOLOGICAL TREATMENT UNITS			
1.	Records are kept of appropriate monitoring parameters that were approved by the permitting authority.	Y ☐	N ☐
2.	Records are kept of the bench-scale or pilot-scale test using Method 304 (or any other method approved by the EPA) in conjunction with a wastewater model (e.g., WATER7, BASTE, TOXCHEM, or any other model validated by Method 301).	Y ☐	N ☐
II.	**VISUAL INSPECTION**		
FOR ALL TREATMENT PROCESSES			
1.	Each opening in the treatment process (except biological treatment systems) is covered and vented to a closed-vent system that is routed to a control device.	Y ☐	N ☐
2.	Any associated closed-vent system is in compliance with the HON according to the checklist in Table 8-14.	Y ☐	N ☐

(continued)

TABLE 8-13. COMPLIANCE CHECKLIST FOR TREATMENT PROCESSES

3.	Any associated control device is in compliance with the HON according to the checklist in Table 8-15.	Y ☐	N ☐
4.	Each cover is kept closed and is in compliance with the HON according to the checklist in Table 8-14.	Y ☐	N ☐
FOR DESIGN STEAM STRIPPERS			
1.	The minimum active column height is at least 5 meters.	Y ☐	N ☐
2.	The countercurrent flow configuration has a minimum of 10 actual trays.	Y ☐	N ☐
3.	The minimum steam flow rate is 0.04 kilograms of steam per liter of wastewater feed.	Y ☐	N ☐
4.	The minimum wastewater feed temperature to the steam stripper is 95 ^{o}C.	Y ☐	N ☐
5.	The maximum liquid loading is 67,100 liters per hour per square meter.	Y ☐	N ☐
6.	The minimum steam quality is 2,765 kiloJoules per kilogram.	Y ☐	N ☐
7.	Associated waste management units, closed-vent systems, and control devices meet the requirements in Tables 8-12, 8-14, and 8-15.	Y ☐	N ☐
FOR BIOLOGICAL TREATMENT UNITS			
	The treatment process is in compliance with all visual inspection parameters approved by the permitting authority and/or specified in the operating permit.	Y ☐	N ☐

[a] NCS = Notification of Compliance Status.

[b] PR = Periodic Report.

NOTE ALL DEFICIENCIES

TABLE 8-14. COMPLIANCE CHECKLIST FOR CONTROL EQUIPMENT REQUIRING LEAK DETECTION[a,b]

Complete this form for closed-vent systems. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

CONTROL OR RECOVERY DEVICE _______________

DATE OF STARTUP _______________________

I. REVIEW OF RECORDS

IF THE CONTROL EQUIPMENT IS A VAPOR-COLLECTION SYSTEM, CLOSED-VENT SYSTEM, COVER, ENCLOSURE, OR FIXED ROOF

1.	Records are kept of all parts of any vapor-collection system, closed-vent system, fixed roof, cover, or enclosure that are designated as either unsafe-to-inspect or difficult-to-inspect.	Y ☐	N ☐
2.	For equipment that is designated as difficult to inspect, a written plan is kept that requires inspection of equipment at least once every five years.	Y ☐	N ☐
3.	For equipment that is designated as unsafe to inspect, a written plan is kept that requires inspection of equipment as frequently as practicable.	Y ☐	N ☐
4.	For each inspection during which a leak was detected, the following information is recorded and reported.[c]		
(a)	Instrument identification numbers, operator name or initials, and equipment identification information;	Y ☐	N ☐
(b)	The date the leak was detected and the date of the first attempt to repair it;	Y ☐	N ☐
(c)	Maximum instrument reading after the leak is repaired or determined to be non-repairable;	Y ☐	N ☐
(d)	Explanation of delay in repair, if the leak was not repaired within 15 days after it was discovered;	Y ☐	N ☐
(e)	Name or initials of person who decides repairs cannot be made without a shutdown;	Y ☐	N ☐

(continued)

TABLE 8-14. COMPLIANCE CHECKLIST FOR CONTROL EQUIPMENT REQUIRING LEAK DETECTION

(f)	Expected date of successful repair if not repaired within 15 days;	Y ☐	N ☐
(g)	Dates of shutdowns that occur while the equipment is unrepaired; and	Y ☐	N ☐
(h)	Date of successful repair of the leak.	Y ☐	N ☐
5.	For each inspection during which no leaks were detected, the following records are kept:		
(a)	Record that the inspection was performed;	Y ☐	N ☐
(b)	Date of the inspection; and	Y ☐	N ☐
(c)	Statement that no leaks were found.	Y ☐	N ☐

IF THE CONTROL EQUIPMENT IS A VAPOR COLLECTION SYSTEM OR CLOSED-VENT SYSTEM

1.	Hourly records are kept of whether the flow indicator in the bypass line was operating and whether flow was detected at any time during the hour, when seal mechanisms are not used <u>and</u>	Y ☐	N ☐
2.	The time and duration of all periods when flow is diverted or the monitor is not operating are reported[c] when seal mechanisms are not used [<u>or</u> #3 and #4]	Y ☐	N ☐
3.	Records of monthly visual inspections are kept when seal mechanisms are used <u>and</u>	Y ☐	N ☐
4.	All periods when the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out are recorded and reported[c] when seal mechanisms are used.	Y ☐	N ☐

[Note: *In order to be in compliance with provisions for* bypass lines, either: #1 and #2 must both be checked "yes" or both #3 and #4 must be checked "yes".]

II. VISUAL INSPECTION

Visual inspection of the facility is consistent with written records.	Y ☐	N ☐

(continued)

TABLE 8-14. COMPLIANCE CHECKLIST FOR CONTROL EQUIPMENT REQUIRING LEAK DETECTION

IF THE CONTROL EQUIPMENT IS A VAPOR-COLLECTION SYSTEM OR CLOSED-VENT SYSTEM

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

[a] This checklist is not applicable to closed-vent systems that are subject to §63.172 in the negotiated rule for equipment leaks (40 CFR Part 63 Subpart H) because such closed-vent systems are exempt from the requirements in §63.148 of Subpart G of the HON.

[b] This checklist is not applicable to vapor-collection systems, closed-vent systems, covers, enclosures, and fixed roofs that are operated and maintained under negative pressure.

[c] Information is submitted as part of the reports required by §63.182(b) of Subpart H.

NOTE ALL DEFICIENCIES

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

Complete this form for wastewater control devices. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance with the standard except where noted.

CONTROL OR RECOVERY DEVICE ______________

DATE OF STARTUP ______________________

I. REVIEW OF RECORDS

IF THE CONTROL DEVICE IS A FLARE

1.	Results of the initial test were submitted in the NCS.[a]	Y ☐	N ☐
2.	The presence of a continuous flare pilot flame is monitored using a device designed to detect the presence of a flame.	Y ☐	N ☐
3.	All periods when all pilot flames to a flare were absent or the monitor was not operating have been recorded and reported in the PR.[b]	Y ☐	N ☐
4.	If the presence of a continuous flare pilot flame is not monitored, either:		
(a)	The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with questions [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
(b)	Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
(c)	Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
(d)	All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

IF THE CONTROL DEVICE IS A THERMAL INCINERATOR

1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

3.	A temperature monitoring device equipped with a continuous recorder is used to measure the temperature of the gas stream in the firebox (or in the ductwork immediately downstream of the firebox before any substantial heat exchange occurs).	Y ☐	N ☐
4.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[c] of firebox temperature are kept.	Y ☐	N ☐
6.	Records of daily average firebox temperature are kept.	Y ☐	N ☐
7.	All daily average firebox temperatures that are outside the site-specific established range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐
9.	If the firebox temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with questions [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #9(a) is checked "Yes", <u>or</u> 9(b), 9(c), and 9(d) are checked "Yes", the facility is in compliance even if numbers 3 through 8 are checked "No".]		
IF THE CONTROL DEVICE IS A CATALYTIC INCINERATOR			
1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

2.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
3.	Temperature monitoring devices equipped with continuous recorders are used to measure the temperature in the gas stream immediately before and after the catalyst bed.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the gas stream temperature upstream of the catalyst bed and the temperature difference across the bed was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
5.	Continuous records[c] are kept of the temperature of the gas stream upstream of the catalyst bed and the temperature difference across the catalyst bed.	Y ☐	N ☐
6.	Records of the daily average temperature upstream of the catalyst bed and the temperature difference across the catalyst bed are kept.	Y ☐	N ☐
7.	All daily average upstream temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
8.	All daily average temperature differences across the catalyst bed that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
9.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐
10.	If the temperature upstream of the catalyst bed and/or the temperature differential across the catalyst bed are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with questions [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

(d)	All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #10(a) is checked "Yes", or 10(b), 10(c), and 10(d) are checked "Yes", the facility is in compliance even if numbers 3 through 9 are checked "No".]		

IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY LESS THAN 44 MEGAWATTS AND THE VENT STREAM IS NOT INTRODUCED WITH THE PRIMARY FUEL

1.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
2.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
3.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
4.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
5.	A temperature monitoring device equipped with a continuous monitor is used to measure the temperature of the gas stream in the firebox.	Y ☐	N ☐
6.	Documentation to establish a site-specific range for firebox temperature was submitted in the NCS[a] or operating permit application.	Y ☐	N ☐
7.	Continuous records[c] are kept of the firebox temperature.	Y ☐	N ☐
8.	Records of the daily average firebox temperature are kept.	Y ☐	N ☐
9.	All daily average firebox temperatures that are outside the site-specific range and all operating days when insufficient monitoring data are collected are reported in the PR.[b]	Y ☐	N ☐
10.	The number of excursions does not exceed the number of excused excursions in the semi-annual reporting period.[d]	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

11.	If the firebox temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with questions [(b) and (c) and (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
	[Note: If #11(a) is checked "Yes", or 11(b), 11(c), and 11(d) are checked "Yes", the facility is in compliance even if numbers 5 through 10 are checked "No".]		
IF THE CONTROL DEVICE IS A BOILER OR PROCESS HEATER WITH A DESIGN HEAT INPUT CAPACITY GREATER THAN 44 MEGAWATTS			
1.	A description of the location at which the vent stream is introduced into the boiler or process heater was submitted in the NCS.[a]	Y ☐	N ☐
2.	The vent stream is introduced into the flame zone of the boiler or process heater.	Y ☐	N ☐
IF THE CONTROL DEVICE IS A REGENERATIVE CARBON ADSORBER			
1a.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
1b.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

2.	An integrating regeneration stream (e.g., steam) flow monitoring device having an accuracy of ± 10 percent and capable of recording total regeneration stream mass flow for each regeneration cycle is used to measure regeneration stream flow.	Y ☐	N ☐
3.	A carbon bed temperature monitoring device capable of recording the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle is used to measure carbon bed regeneration temperature.	Y ☐	N ☐
4.	Documentation to establish a site-specific range for the regeneration stream flow and carbon bed regeneration temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
5.	Records are kept of the total regeneration stream mass flow for each carbon bed regeneration cycle.	Y ☐	N ☐
6.	Records are kept of the temperature of the carbon bed after each carbon bed regeneration.	Y ☐	N ☐
7.	All regeneration cycles when the total regeneration stream mass flow is outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
8.	All regeneration cycles during which the temperature of the carbon bed after regeneration is outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
9.	If the regeneration stream flow and/or the carbon bed regeneration temperature are not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting <u>or</u> continue with questions [(b) <u>and</u> (c) <u>and</u> (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

[Note: If #9(a) is checked "Yes", or 9(b), 9(c), and 9(d) are checked "Yes", the facility is in compliance even if numbers 2 through 8 are checked "No".]

IF THE CONTROL DEVICE IS A CONDENSER

1a.	Results of the initial performance test were submitted in the NCS.[a]	Y ☐	N ☐
1b.	Test documentation demonstrates 95 percent HAP or TOC control efficiency or test documentation demonstrates outlet concentrations of 20 ppmv or less HAP or TOC.	Y ☐	N ☐
2.	A temperature monitoring device equipped with a continuous recorder is used to measure the product side exit temperature.	Y ☐	N ☐
3.	Documentation to establish a site-specific range for the exit temperature was submitted in the NCS[a] or operating permit.	Y ☐	N ☐
4.	Records of the daily average exit temperature are kept.	Y ☐	N ☐
5.	Continuous records[c] of the exit temperature are kept.	Y ☐	N ☐
6.	All product side daily average exit temperatures that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐
7.	If the exit temperature is not monitored, either:		
	(a) The facility has documentation that they applied for and received approval to monitor an alternative parameter, and are performing the required recordkeeping and reporting or continue with questions [(b) and (c) and (d)].	Y ☐	N ☐
	(b) Continuous records are kept of the concentration level or reading indicated by an organic monitoring device at the outlet of the control device.	Y ☐	N ☐
	(c) Records are kept of the daily average concentration level or reading for each operating day.	Y ☐	N ☐
	(d) All daily average concentration levels or readings that are outside the site-specific range are reported in the PR.[b]	Y ☐	N ☐

[Note: If #7(a) is checked "Yes", or 7(b), 7(c), and 7(d) are checked "Yes", the facility is in compliance even if numbers 2 through 6 are checked "No".]

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

II.	**VISUAL INSPECTION**		
1.	For flares, a device for detecting the flame is present.	Y ☐	N ☐
2.	For all incinerators, and for boilers and process heaters with design heat input capacities less than 44 megawatts and the vent steam is not introduced with the primary fuel, a temperature monitoring device is present.	Y ☐	N ☐
3.	For carbon adsorbers, a device for measuring carbon bed temperature and a device for measuring regeneration stream flow are present.	Y ☐	N ☐
4.	For condensers, a temperature monitoring device is present.	Y ☐	N ☐
5.	Visual inspection of the facility is consistent with written records.	Y ☐	N ☐

[a] NCS = Notification of Compliance Status.

[b] PR = Periodic Reports.

[c] Continuous records, as defined in §63.111, means documentation, either in computer readable form or hard copy, or data values measured at least once every 15 minutes and recorded at the frequency specified in §63.152(f). Section 63.152(f) allows the owner to record either values measured every 15 minutes or 15-minute (or shorter period) block average values calculated from all measured values during each period. If the daily average value of a monitored value for a given parameter is within the range established in the NCS, the owner or operator may retain block hourly averages instead of the 15-minute values. An owner or operator may request approval to use alternatives to continuous monitoring under §63.151(g) of Subpart G.

[d] The number of excused excursions is as follows:

For the first semi-annual period after the NCS is due - 6 excursions;
For the second semi-annual period - 5 excursions;
For the third semi-annual period - 4 excursions;
For the fourth semi-annual period - 3 excursions;
For the fifth semi-annual period - 2 excursions;
For the sixth and all subsequent semi-annual periods - 1 excursion.

An excursion occurs when: (1) the daily average value of the monitored parameter is outside the range established in the NCS or operating permit; or (2) if monitoring data are insufficient. In order to have sufficient data, a source must have measured values for each 15-minute period within each hour for at least 75 percent of the hours the control device is operating in a day. For example, if a control device operates 24 hours per day, data must be available for all 15-minute periods in at least 18 hours; but up to 6 hours may have incomplete data. If more than 6 hours have incomplete data, an excursion has occurred. For control devices that operate less than 4 hours a day, one hour of incomplete data is allowed.

(continued)

TABLE 8-15. COMPLIANCE CHECKLIST FOR WASTEWATER CONTROL DEVICES

NOTE ALL DEFICIENCIES

TABLE 8-16. COMPLIANCE CHECKLIST FOR HEAT EXCHANGE SYSTEMS REQUIRING LEAK DETECTION

Complete this form for closed-vent systems. A "yes" response to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

HEAT EXCHANGE SYSTEM ________________

DATE OF STARTUP ____________________

Note: Sources are not required to comply with leak detection monitoring requirements if either: (1) the heat exchange system is operated with the minimum pressure on the cooling water side at least 35 kilopascals greater than the maximum pressure on the process side; or (2) the once-through heat exchange system has an NPDES permit with an allowable discharge limit of less than 1 ppm.

I.	**REVIEW OF RECORDS**		
1a.	For once-through heat exchange systems, records indicate that systems are monitored for leaks of HAPs listed on Table 9 of Subpart G.	Y ☐	N ☐
1b.	For recirculating heat exchange systems, records indicate that systems are monitored for leaks of HAPs listed on Table 2 of Subpart F, except for benzotrichloride (98077), bis(chloromethyl)ether (542881), maleic anhydride (108316), and methyl isocyanate (624839).	Y ☐	N ☐
2.	If there is a delay of repair of a leak, the following information was reported in the PR[a] and maintained as a record.		
	(a) Identification of the leak and date the leak was detected.	Y ☐	N ☐
	(b) Whether or not the leak has been repaired.	Y ☐	N ☐
	(c) Reason for delay of repair.	Y ☐	N ☐
	(d) The expected date of repair if the leak remains unrepaired.	Y ☐	N ☐
	(e) The date of repair, if the leak is repaired.	Y ☐	N ☐
II.	**VISUAL INSPECTION**		
	Visual inspection of the facility is consistent with written records.	Y ☐	N ☐

[a] PR = Periodic Reports.

(continued)

TABLE 8-16. COMPLIANCE CHECKLIST FOR HEAT EXCHANGE SYSTEMS REQUIRING LEAK DETECTION

NOTE ALL DEFICIENCIES

TABLE 8-17. COMPLIANCE CHECKLIST FOR MAINTENANCE WASTEWATER MANAGEMENT

Complete this form for maintenance wastewater management activities. A"yes" to all questions will indicate full compliance, and "no" responses will indicate noncompliance except where noted.

MAINTENANCE WASTEWATER STREAM ________

DATE OF STARTUP ________________________

I.	REVIEW OF RECORDS			
1.	Records are kept of the procedures for managing maintenance wastewater as part of the startup, shutdown, and malfunction plan.		Y ☐	N ☐
2.	The maintenance procedures specify the following items:			
	(a)	The process equipment and/or maintenance tasks that are expected to create wastewater during maintenance activities.	Y ☐	N ☐
	(b)	The procedure for properly managing the wastewater and controlling HAP emissions to the atmosphere.	Y ☐	N ☐
	(c)	The procedures for clearing materials from process equipment.	Y ☐	N ☐
II.	VISUAL INSPECTION			
	All maintenance wastewater streams are being managed in accordance with the procedures specified in the start-up, shutdown, and malfunction plan.		Y ☐	N ☐

NOTE ALL DEFICIENCIES

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