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National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA–HQ–OAR–2002–0037; FRL–9636–2]

RIN 2060–AN33

National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The EPA is promulgating National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production. The final rules establish emission standards that apply at all times, including periods of startup, shutdown and malfunction, for hazardous air pollutants from polyvinyl chloride and copolymers production located at major and area sources. The final rules include requirements to demonstrate initial and continuous compliance with the emission standards, including monitoring provisions and recordkeeping and reporting requirements.

DATES: The final rules are effective on April 17, 2012. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of April 17, 2012.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2002–0037. All documents in the docket are listed on the *http://www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, *e.g.,* confidential business information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *http://www.regulations.gov* or in hard copy at the EPA's Docket Center, Public Reading Room, EPA West Building, Room 3334, 1301 Constitution Avenue NW., Washington, DC 20004. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744 and the telephone number for the EPA Docket Center is (202) 566–1742.

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SUPPLEMENTARY INFORMATION:

Acronyms and Abbreviations. The following acronyms and abbreviations are used in this document.

CAA Clean Air Act
CDD/CDF chlorinated dibenzo-dioxins and furans
CDX Central Data Exchange
CEDRI Compliance and Emissions Data Reporting Interface
CEMS continuous emission monitoring system
CPMS continuous parameter monitoring system
DCS distributed control system
dscm dry standard cubic meter
EDC ethylene dichloride
ERT Electronic Reporting Tool
GACT generally available control technologies or management practices
HMW high molecular weight
HAP hazardous air pollutants
HCl hydrogen chloride
HON Hazardous Organic NESHAP
ICR information collection request
LAER lowest achievable emission rate
LDAR leak detection and repair
LMW low molecular weight
LOQ limit of quantitation
MACT maximum achievable control technology
MDL method detection levels
MON Miscellaneous Organic Chemical Manufacturing NESHAP
NAICS North American Industry Classification System
NESHAP national emission standards for hazardous air pollutants
ng/dscm nanograms per dry standard cubic meter
NO_X nitrogen oxide
NTTAA National Technology Transfer and Advancement Act
OMB Office of Management and Budget
POD point of determination
POG point of generation
ppbv parts per billion by volume
ppbw parts per billion by weight
ppm parts per million
ppmv parts per million by volume
ppmw parts per million by weight
PQL practical quantitation limit
PRD pressure relief device
psia pounds per square inch absolute
PVC polyvinyl chloride and copolymers
PVCPU PVC production process unit
RCRA Resource Conservation and Recovery Act
RDL representative method detection level
RFA Regulatory Flexibility Act
RL reporting limit
SBREFA Small Business Regulatory Enforcement Fairness Act
SO_2 sulfur dioxide
TCEQ Texas Commission on Environmental Quality
TEQ toxic equivalent
THC total hydrocarbon
tpy tons per year
TTN Technology Transfer Network
UMRA Unfunded Mandates Reform Act
UPL upper predictive limit
VACO vinyl acetate copolymer
VCM vinyl chloride monomer
VCS voluntary consensus standards
VOC volatile organic compound
WWW World Wide Web

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I. General Information

A. Does this action apply to me?

The final rules establish national emission standards for hazardous air pollutants (NESHAP) for polyvinyl chloride and copolymer (PVC) production. The regulated categories and entities potentially affected by these standards include the following:

Category	NAICS [a] Code	Examples of potentially regulated entities
Polyvinyl chloride resins manufacturing ...	325211	Facilities that polymerize vinyl chloride monomer to produce polyvinyl chloride and/or copolymers products.

[a] North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. To determine whether your facility, company, business, organization, etc., is affected by this action, you should examine the applicability criteria in 40 CFR part 63, subpart HHHHHHH (National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production) and in 40 CFR part 63, subpart DDDDDD (National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production Area Sources).

A polyvinyl chloride and copolymer production facility is not subject to either subpart if it is a research and development facility, as defined in section 112(c)(7) of the Clean Air Act (CAA). If you have any questions regarding the applicability of this final action to a particular entity, contact the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

B. Where can I get a copy of this document?

In addition to being available in the docket, an electronic copy of this action will also be available on the World Wide Web (WWW) through the Technology Transfer Network (TTN). Following signature, a copy of the final action will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: *http://www.epa.gov/ttn/oarpg/*. The TTN provides information and technology exchange in various areas of air pollution control.

C. Judicial Review

Under CAA section 307(b)(1), judicial review of this final rule is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit by June 18, 2012. Under CAA section 307(d)(7)(B), only an objection to this final rule that was raised with reasonable specificity during the period for public comment (including any public hearing) can be raised during judicial review. This section also provides a mechanism for the EPA to convene a proceeding for reconsideration, ''[i]f the person raising an objection can demonstrate to EPA that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of this rule.'' Any person seeking to make such a demonstration to the EPA should submit a Petition for Reconsideration to the Office of the Administrator, Environmental Protection Agency, Room 3000, Ariel Rios Building, 1200 Pennsylvania Ave. NW., Washington, DC 20460, with a copy to the contact listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel for the Air and Radiation Law Office (Mail Code 2344A), Environmental Protection Agency, 1200 Pennsylvania Ave. NW., Washington, DC 20460. Note, under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce these requirements.

II. Background Information for This Final Rule

A. What is the statutory authority for the final PVC rules?

Section 112(d) of the CAA requires the EPA to establish NESHAP for source categories and subcategories of both major and area sources of hazardous air pollutants (HAP) that are listed for regulation under CAA section 112(c). A major source emits or has the potential to emit 10 tons per year (tpy) or more of any single HAP or 25 tpy or more of any combination of HAP. An area source is a HAP-emitting stationary source that is not a major source.

Section 112(d) of the CAA requires the EPA to set emissions standards for HAP emitted by major stationary sources, based on performance of the maximum achievable control technology (MACT). The MACT standards for existing sources must be at least as stringent as the average emissions limitation achieved by the best-performing 12 percent of existing sources (for which the Administrator has emissions information) or the best-performing five sources for source categories or subcategories with fewer than 30 sources (CAA section 112(d)(3)(A) and (B)). This minimum level of stringency is called the MACT floor. For new sources, MACT standards must be at least as stringent as the control level achieved in practice by the best-controlled similar source (CAA section 112(d)(3)). The EPA also must consider more stringent ''beyond-the-floor'' control options. When considering beyond-the-floor options, the EPA must consider not only the maximum degree of reduction in emissions of HAP, but must take into account costs, energy and non-air

quality health and environmental impacts when doing so.

Under CAA section 112(d)(5), the EPA can promulgate standards or requirements for area sources ''which provide for the use of generally available control technologies or management practices [GACT] by such sources to reduce emissions of hazardous air pollutants.'' Additional information on generally available control technology (GACT) is found in the Senate report on the legislation (Senate Report Number 101–228, December 20, 1989), which describes GACT as:

> * * * methods, practices and techniques which are commercially available and appropriate for application by the sources in the category considering economic impacts and the technical capabilities of the firms to operate and maintain the emissions control systems.

Consistent with the legislative history, we can consider costs and economic impacts in determining GACT.

Determining what constitutes GACT involves considering the control technologies and management practices that are generally available to the area sources in the source category. We also consider the standards applicable to major sources in the analogous source category to determine if the control technologies and management practices are transferable and generally available to area sources. In appropriate circumstances, we may also consider technologies and practices at area and major sources in similar categories to determine whether such technologies and practices could be considered generally available for the area source categories at issue. Finally, as noted above, in determining GACT for a particular area source category, we consider the costs and economic impacts of available control technologies and management practices on that category.

Under CAA section 112(d)(6), we are required to ''review, and revise as necessary (taking into account developments in practices, processes, and control technologies), emission standards promulgated under this section no less often than every 8 years.''

B. 2004 Vacatur and EPA's Response

On July 10, 2002, the EPA promulgated NESHAP for new and existing PVC production facilities that are located at major sources in 40 CFR part 63, subpart J (67 FR 45886, July 10, 2002) (referred to as the ''part 63 NESHAP''). In that rulemaking, the EPA determined that compliance with the existing Vinyl Chloride NESHAP (40 CFR part 61, subpart F) (referred to as the ''part 61 NESHAP'') reflected the application of MACT; thus, satisfying CAA section 112(d), with the exception of adding requirements for equipment leaks at new sources. In the part 63 NESHAP, the EPA regulated vinyl chloride emissions as a surrogate for all HAP emitted from PVC production. For equipment leaks, the part 63 NESHAP required that new sources comply with 40 CFR part 63, subpart UU, National Emission Standards for Equipment Leaks—Control Level 2 Standards.

In *Mossville Environmental Action Now* v. *EPA,* 370 F.3d 1232 (DC Cir. 2004), the petitioners argued that the EPA failed to set emission standards for all HAP emitted by PVC plants. The EPA had set emission standards for vinyl chloride as a surrogate for the remaining HAP because it was the predominant HAP used and emitted at PVC plants. The Court ruled that the EPA did not adequately explain the basis for its decision to use vinyl chloride as a surrogate for other HAP. The Court ''vacated and remanded [the rule in its entirety] to the agency for it to reconsider or properly explain its methodology for regulating [HAP] emitted in PVC production other than vinyl chloride by use of a surrogate.'' 370 F.3d at 1243. This rule promulgates NESHAP for PVC production at major sources in response to the remand and in accordance with section 112 of the CAA.

On January 23, 2007 (72 FR 2930), the EPA promulgated NESHAP for new and existing PVC production area sources in 40 CFR part 63, subpart DDDDDD. Subpart DDDDDD was based on GACT and required area sources to meet the requirements in the existing part 61 NESHAP. The part 61 NESHAP requirements address only vinyl chloride emissions. In this rulemaking, we are fulfilling our obligation under CAA section 112(d)(6) to review and revise, as necessary, the PVC production area source standards. We coordinated our CAA 112(d)(6) review of the area source standards with the development of major source MACT standards in response to the Court remand.

III. Summary of Significant Changes Since Proposal

The EPA received over 39 public comment letters on the proposed rulemaking. Furthermore, we conducted two public hearings to allow the public to comment on the proposed rulemaking. After consideration of public comments and new data received, the EPA is making several changes to the standards. Following are the major changes to the standards since the proposal. The rationale for these and other significant changes can be found in section V of this preamble or in the *National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production: Summary of Public Comments and Responses,* in the PVC docket (EPA–HQ–OAR–2002–0037).

A. Applicability

The definition of affected source was changed to clarify the requirements for existing and new affected sources. In the proposed rule, an affected source was defined as each individual PVC production process unit (PVCPU) and a new affected source was a PVCPU for which construction commenced on or after May 20, 2011, at a major or area source. A PVCPU was defined to include all equipment connected by shared piping, including equipment typically shared by multiple PVCPU, such as heat exchangers and wastewater treatment systems.

In the final rule, the existing affected source is the facility-wide collection of all PVCPU, storage vessels, surge control vessels, heat exchange systems, wastewater, and process wastewater treatment systems that are associated with producing PVC. A new affected source is defined as follows:

- All PVCPU, storage vessels, surge control vessels, heat exchange systems, wastewater and process wastewater treatment systems that are associated with producing PVC and are constructed at a Greenfield facility after May 20, 2011; or that are located at an existing facility that did not previously produce PVC prior to the rule proposal but has undergone process changes to start producing PVC.
- A reconstructed affected source.

As an example, if an existing PVC plant adds a new PVCPU, the new PVCPU and the associated emission control devices and wastewater treatment processes would be subject to the existing source NESHAP limits, unless it qualifies as a reconstructed source. A newly constructed PVCPU would be subject to the new source requirements in the final rules only if it was constructed at a Greenfield site or at a site that had not previously produced PVC prior to the date of proposal of this rule (May 20, 2011) or if it qualifies as a reconstructed source.

B. Subcategories

At proposal, we did not subcategorize process vents. In the final rule, we have established two subcategories for process vents: PVC-only and PVC-combined. PVC-only process vents comprise process vent streams that

originate solely from a PVCPU. PVC-combined process vents comprise process vent streams that originate from a PVCPU and that are combined or are co-controlled with process vent streams that originate from other source categories such as ethylene dichloride (EDC) or vinyl chloride monomer (VCM) production processes. The change to subcategories was based on our review of comments, further review of the originally submitted test data, and our review of additional data submitted by industry after proposal. We determined that there are significant differences between the emission profiles of process vents that originate solely from a PVCPU and the emission profiles of process vents that originate from a PVCPU and are combined with process vents from other source categories prior to control. Further discussion of the differences between PVC-only and PVC-combined process vent streams is provided in section V.D of this preamble, and data showing the differences is provided in the memorandum, *Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category, which is available in the docket.*

A facility subject to the PVC-combined limits that no longer combines vent streams from other source categories, or a facility that is subject to the PVC-only limits that subsequently combines vent streams from other source categories, is subject to the process change requirements in 40 CFR 63.11896 of the final rule. Routine and maintenance shutdowns that cause temporary cessation of the vent stream flow from other source categories are not subject to the process change requirements.

At proposal, we subcategorized stripped resins into three subcategories: (1) Bulk resin, (2) dispersion resin and (3) all other resin. For the final rule, we subcategorized stripped resins into five subcategories: (1) Suspension resin, (2) dispersion resin, (3) suspension blending resin, (4) bulk resin and (5) copolymer resin. The change to subcategories was made based on our review of comments and additional data submitted by the industry (see section V.D of this preamble for more discussion of our response to these and other public comments) after proposal. We determined that there are significant differences in the concentrations of vinyl chloride and organic HAP that remain in the various types of resin following stripping due to differing process equipment and raw materials that are used to produce the varying types of resins, such that further subcategorization of stripped resin was warranted.

C. Emission Standards

In the final rule, we revised the emission limits based on additional data received and the additional subcategories for process vents and stripped resins. The emission limit changes are discussed in section V.E.2 of this preamble and documented in the technical memorandum, *Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* which is available in the docket. We also made revisions to the requirements for process wastewater, heat exchange systems, equipment leaks and other emission sources as discussed below.

We considered all the data regarding the PVC source category available to the agency in establishing the emission limits presented in Tables 1 through 8 below for process vents, stripped resins, and process wastewater. In reviewing those data, we found that the HAP emitted from the PVC source category are organic HAP (including vinyl chloride and chlorinated dibenzo-dioxins and furans (CDD/CDF)) and hydrogen chloride (HCl). We did not identify in the data any inorganic HAP, metal HAP, or any acid gases other than HCl, which is also a surrogate for chlorine gas. In setting limits for all HAP emitted at PVC major sources, we established total hydrocarbons (THC) limits as a surrogate for organic HAP from process vents, along with limits for HCl as a surrogate for all acid gas HAP and chlorine gas, vinyl chloride, and CDD/CDF. Although vinyl chloride and CDD/CDF are organic HAP, we established separate limits for these pollutants. Vinyl chloride is the primary ingredient in PVC production and is present at all emission points. Vinyl chloride, which is also an urban HAP, is already regulated at PVC facilities under the part 61 NESHAP. However, we are not setting vinyl chloride limits as a surrogate for other HAP. The CDD/CDF emissions are generated from combustion control of organic HAP from process vents (as is HCl), and CDD/CDF are emitted at levels that are orders of magnitude lower than other organic HAP, thus requiring a separate test method to be detected and measured.

We identified in the data for stripped resins and process wastewater only organic HAP (including vinyl chloride). For these emission sources, we are establishing total non-vinyl chloride organic HAP limits. We did not establish a THC limit for stripped resins and process wastewater because the data were derived from liquid samples (as opposed to gaseous samples for process vents), and no test method is available for testing THC in liquid samples.

For heat exchange systems and equipment leaks, we are setting requirements for leak detection and repair (LDAR). For heat exchange systems, we are setting a total strippable volatile organic compounds (VOC) leak action level and an alternative vinyl chloride leak action level because if either of these pollutants is detected in the cooling water or in the stripping gas, then repair of the leak will be required and will control all HAP. For equipment leaks, we are setting only a VOC leak action level because the only currently EPA approved leak detection method is EPA Method 21, which measures VOC. Like heat exchange systems, if the VOC leak is detected, then repair of the leak will be required and result in control of all HAP. (See preamble section V.C for further discussion regarding the pollutants regulated.)

1. Process Vents

In the proposed and final rule, we calculated the MACT floor emission levels for process vents accounting for variability using a 99-percent upper predictive limit (UPL) calculation. In the final rule, we used a 99-percent UPL calculation, but we changed the value for the number of samples used in the compliance average (the m value) in the UPL calculation for THC to 3 instead of 30 to reflect the actual number of THC test runs that will comprise the compliance average.

Tables 1 and 2 of this preamble present the final process vent emission limits for existing sources and new sources, respectively, compared to the proposed limits.

TABLE 1—COMPARISON OF PROPOSED AND FINAL EMISSION LIMITS FOR PROCESS VENTS AT EXISTING MAJOR SOURCES

Pollutant	Emission limits [a]		
	Proposed	Final: PVC-only	Final: PVC-combined
Vinyl chloride	0.32 ppmv	6.0 ppmv	1.1 ppmv.
Hydrogen chloride	150 ppmv	78 ppmv	380 ppmv.
Total hydrocarbons (THC)	2.0 ppmv as propane [c]	9.7 ppmv as propane	4.2 ppmv as propane.
Total organic HAP [b]	12 ppmv	56 ppmv	9.8 ppmv.
Dioxin/furans (TEQ)	0.023 ng/dscm	0.038 ng/dscm	0.051 ng/dscm.

[a] ppmv = parts per million by volume dry at 3-percent oxygen (O_2). ng/dscm = nanograms per dry standard cubic meter at 3-percent O_2.
[b] Total organic HAP is alternative compliance limit for THC.
[c] Proposed THC compliance limit.

TABLE 2—COMPARISON OF PROPOSED AND FINAL EMISSION LIMITS FOR PROCESS VENTS AT NEW MAJOR SOURCES

Pollutant	Emission limits [a]		
	Proposed	Final: PVC-only	Final: PVC-combined
Vinyl chloride	3.2 ppbv	0.56 ppmv	0.56 ppmv.
Hydrogen chloride	0.17 ppmv	0.17 ppmv	1.4 ppmv.
Total hydrocarbons (THC)	2.0 ppmv as propane [c]	7.0 ppmv as propane	2.3 ppmv as propane.
Total organic HAP [b]	0.22 ppmv	5.5 ppmv	5.5 ppmv.
Dioxin/furans (TEQ)	0.0087 ng/dscm	0.038 ng/dscm	0.034 ng/dscm.

[a] ppmv = parts per million by volume dry at 3-percent O_2. ng/dscm = nanograms per dry standard cubic meter at 3-percent O_2.
[b] Total organic HAP is alternative compliance limit for THC.
[c] Proposed THC compliance limit.

2. Equipment Leaks

In the proposed rule, we required reciprocating pumps, reciprocating and rotating compressors and agitators to be equipped with double seals or the equivalent. In the final rule, we are also allowing affected sources to comply with the requirements for reciprocating pumps, reciprocating and rotating compressors and agitators by complying with the requirements for 40 CFR part 63, subpart UU. If double mechanical seals, or the equivalent, are not used, 40 CFR part 63, subpart UU requires pumps to be monitored monthly at a leak definition of 1,000 parts per million (ppm); agitators must be monitored monthly at a leak definition of 10,000 ppm, and compressors must either be leakless (i.e., operating with an instrument reading of less than 500 ppm above background) or be equipped with a system to capture and transport leaks through a closed vent system to a control device.

3. Stripped Resin

In the proposed rule, we calculated concentration values for HAP in the dispersion resin subcategory using the reported mass-based values (for HAP present in the resin) and the dispersion resin production for each facility. The concentration values were then used to calculate the MACT floor emission limits for dispersion resin. For the final rule, we used the original vinyl chloride and other organic HAP concentration values, as measured and analyzed, as the basis for setting the MACT floors. This change is consistent with how we set the MACT floors for the other resin subcategories and provides a more accurate basis for setting concentration-based limits.

At proposal, vinyl chloride and total HAP limits for stripped resins were calculated using a 99-percent UPL calculation based on 30 days of vinyl chloride and other HAP data from all facilities that conducted resin sampling and analysis as part of our August 21, 2009, CAA section 114 survey and testing request for the PVC industry. The vinyl chloride stripped resin limits were calculated using data obtained from resin sampling using EPA SW–846 Method 8260B.

For the final rule, vinyl chloride limits for stripped resins were calculated based on 4 years of vinyl chloride compliance data, submitted by the PVC industry after proposal, that were obtained by resin sampling using EPA Method 107. This revision was made because EPA Method 107 is a better measure than EPA SW–846 Method 8260B of the concentration of vinyl chloride in PVC resin, as explained further in section V.E of this preamble. Furthermore, because of the significantly larger dataset of vinyl chloride concentrations measured using EPA Method 107, we calculated the final stripped resin vinyl chloride limits using a percentile for the top 5 sources. Percentiles represent the specified slice of the sample data and unlike confidence and prediction intervals, they are distribution-free.

In the proposed rule, the total HAP limits for the stripped resin subcategories included the contribution from vinyl chloride. In the final rule, vinyl chloride concentrations were removed from the total organic HAP limit calculations, resulting in total non-vinyl chloride organic HAP limits for all subcategories of stripped resin. This change was made because we have established separate limits for vinyl chloride in stripped resin and we are requiring compliance with those limits using EPA Method 107. The total non-vinyl chloride organic HAP limits are based on concentration data for all measured organic HAP, excluding vinyl chloride, collected using EPA SW–846 Methods 8015C, 8260B, 8270D and 8315A. Additional discussion is provided in section V.D of this preamble and in the memorandum, *Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* which is available in the docket.

At proposal, variability in the total HAP limits was assessed using a 99-percent UPL calculation where the m value was set at 30 to represent 30 single daily total HAP values. For the final rule, variability was assessed in the total non-vinyl chloride organic HAP limits using the 99-percent UPL calculation and an m value of 1 to represent monthly compliance, as

explained further in section V of this preamble.

For the final rule, we excluded information from several facilities from the MACT floor analysis due to the use of inconsistent test methods, inaccurate or questionable method detection levels (MDL), or lack of documentation on the sampling and analysis results. The changes made to the MACT floor calculations are discussed in section V.E.2 of this preamble.

Tables 3 through 7 of this preamble present the proposed and final stripped resin emission limits for bulk resin, dispersion resin, suspension resin, suspension blending resin and copolymer resin, respectively, at existing and new sources.

TABLE 3—COMPARISON OF PROPOSED AND FINAL EMISSION LIMITS FOR BULK RESIN AT EXISTING AND NEW MAJOR SOURCES

Source	Pollutant	Bulk resin	
		Proposed emission limits (ppmw) [a]	Final emission limits (ppmw) [a]
Existing	Vinyl Chloride	7.1	7.1
	Total Non-Vinyl Chloride Organic HAP	170	170
New	Vinyl Chloride	7.1	7.1
	Total Non-Vinyl Chloride Organic HAP	170	170

[a] At proposal, the total organic HAP limit included vinyl chloride. The final total non-vinyl chloride organic HAP limit excludes vinyl chloride.

TABLE 4—COMPARISON OF PROPOSED AND FINAL EMISSION LIMITS FOR DISPERSION STRIPPED RESIN AT EXISTING AND NEW MAJOR SOURCES

Source	Pollutant	Dispersion resin	
		Proposed emission limits (ppmw) [a]	Final emission limits (ppmw) [a]
Existing	Vinyl Chloride	55	1300
	Total Non-Vinyl Chloride Organic HAP	110	240
New	Vinyl Chloride	41	480
	Total Non-Vinyl Chloride Organic HAP	58	66

[a] At proposal, the total organic HAP limit included vinyl chloride. The final total non-vinyl chloride organic HAP limit excludes vinyl chloride.

TABLE 5—COMPARISON OF PROPOSED AND FINAL EMISSION LIMITS FOR SUSPENSION STRIPPED RESIN AT EXISTING AND NEW MAJOR SOURCES

Source	Pollutant	Suspension resin	
		Proposed emission limits (ppmw) [a b]	Final emission limits (ppmw) [a b]
Existing	Vinyl Chloride	0.48	37
	Total Non-Vinyl Chloride Organic HAP	76	670
New	Vinyl Chloride	0.20	7.3
	Total Non-Vinyl Chloride Organic HAP	42	15

[a] At proposal, suspension resin was included in the ''all other resins'' subcategory.
[b] At proposal, the total organic HAP limit included vinyl chloride. The final total non-vinyl chloride organic HAP limit excludes vinyl chloride.

TABLE 6—EMISSION LIMITS FOR SUSPENSION BLENDING STRIPPED RESIN AT EXISTING AND NEW MAJOR SOURCES

Source	Pollutant	Suspension blending resin	
		Proposed Emission limits (ppmw) [a b]	Final emission limits (ppmw) [a b]
Existing	Vinyl Chloride	0.48	140
	Total Non-Vinyl Chloride Organic HAP	76	500
New	Vinyl Chloride	0.20	140
	Total Non-Vinyl Chloride Organic HAP	42	500

[a] At proposal, suspension blending resin was included in the ''all other resins'' subcategory.
[b] At proposal, the total organic HAP limit included vinyl chloride. The final total non-vinyl chloride organic HAP limit excludes vinyl chloride.

TABLE 7—COMPARISON OF PROPOSED AND FINAL EMISSION LIMITS FOR COPOLYMER STRIPPED RESIN AT EXISTING AND NEW MAJOR SOURCES

Source	Pollutant	Copolymer resin	
		Proposed emission limits (ppmw) [a b]	Final emission limits (ppmw) [a b]
Existing	Vinyl Chloride	0.48	790
	Total Non-Vinyl Chloride Organic HAP	76	1,900
New	Vinyl Chloride	0.20	790
	Total Non-Vinyl Chloride Organic HAP	42	1,900

[a] At proposal, copolymer resins were included in the ''all other resins'' subcategory.
[b] At proposal, the total organic HAP limit included vinyl chloride. The final total non-vinyl chloride organic HAP limit excludes vinyl chloride.

4. Wastewater

In the proposed rule, the wastewater limits applied to both process wastewater and maintenance wastewater. The final rule contains vinyl chloride and total non-vinyl chloride organic HAP limits for process wastewater, and requires compliance with the National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry (Hazardous Organic NESHAP or HON) maintenance wastewater provisions for maintenance wastewater at affected sources. For the proposed rule, the wastewater vinyl chloride concentration limits were calculated using a 99-percent UPL calculation with an m value of 1 to represent monthly compliance. The limits were calculated based on data reported in survey responses from companies responding to our August 21, 2009, CAA section 114. For the final rule, we recalculated the monthly vinyl chloride concentration limits for process wastewater using a 99-percent UPL calculation, as described above, but the limits were calculated based on 1 year of daily sampling data provided by the industry after proposal.

In the proposed rule, total HAP emission limits were based on a beyond-the-floor option of complying with the HON flow rate and concentration limits for wastewater. The proposed total HAP limits also included vinyl chloride. For the final rule, we calculated a total non-vinyl chloride organic HAP emission limit for process wastewater instead of a total HAP limit, with compliance demonstrated on a monthly basis. The total non-vinyl chloride organic HAP limits for process wastewater are based on information and data provided by industry in response to the August 21, 2009, CAA section 114 survey, corrections to those data provided by the PVC industry during the public comment period, and supplemental resin sampling data provided during the public comment period by one PVC manufacturer.

Table 8 of this preamble presents the proposed and final emission limits for process wastewater at existing and new sources.

TABLE 8—COMPARISON OF PROPOSED AND FINAL EMISSION LIMITS FOR PROCESS WASTEWATER AT EXISTING AND NEW SOURCES

Source	Pollutant	Proposed emission limits (ppmw)	Final emission limits (ppmw)
Existing	Vinyl Chloride	Less than 10 ppmw for streams that do not require treatment, or 0.11 ppmw for streams that require treatment [a].	6.8
	Total Non-Vinyl Chloride Organic HAP.	Less than 1,000 ppmw or less than 10 liters per minute annual average flow rate for streams that do not require treatment, or the provisions of 40 CFR part 63, subpart G for streams that require treatment [b].	110
New	Vinyl Chloride	Less than 10 ppmw for streams that do not require treatment, or 0.0060 ppmw for streams that require treatment [a].	0.28
	Total Non-Vinyl Chloride Organic HAP.	Less than 1,000 ppmw or less than 10 liters per minute annual average flow rate for streams that do not require treatment, or the provisions of 40 CFR part 63, subpart G for streams that require treatment [b].	0.018

[a] At proposal, if a wastewater stream contained a vinyl chloride concentration greater than 10 ppmw at the point of generation, then treatment was required.
[b] At proposal, if a wastewater stream contained a HAP concentration (based on HAP listed in Table 9 to part 63, subpart G) less than 1,000 ppmw or an annual average flow rate less than 10 liters per minute, then treatment was not required.

5. Heat Exchange Systems

We proposed that affected sources would have the option of using the Texas Commission on Environmental Quality (TCEQ) Modified El Paso Method or EPA SW–846 Method 8021B to monitor for leaks of VOC in their heat exchange system cooling water. For new affected sources, we proposed a total strippable VOC leak action level of 2.3 parts per million by volume (ppmv) (as methane) in the stripping gas or 30 parts per billion by weight (ppbw) in the cooling water, with monitoring every 12 hours. For existing affected sources, we proposed a total strippable VOC leak action level of 2.9 ppmv (as methane) in the stripping gas or 38 ppbw in the cooling water, with monthly monitoring. Our proposed delay of repair action levels for new and existing sources were a total strippable VOC leak action level of 29 ppmv (as methane) in the stripping gas or 380 ppbw in the cooling water.

In the final rule, we are requiring monthly cooling water monitoring for

either total strippable VOC or for vinyl chloride. Total strippable VOC monitoring must be done using either the TCEQ Modified El Paso Method or EPA Method 624, and vinyl chloride monitoring must be done using EPA Method 107, as it is the established method for the PVC industry to analyze vinyl chloride concentrations in water samples. The leak action levels for new and existing sources are the same in the final rule. Furthermore, the leak action levels and delay of repair action levels are the same whether facilities monitor for strippable VOC or for vinyl chloride in the cooling water and are 50 ppbw and 500 ppbw, respectively. For total strippable VOC monitoring using the TCEQ Modified El Paso Method, the leak action level is 3.9 ppmv in the stripping gas and the delay of repair action level is 39 ppmv. Table 9 of this preamble presents the proposed and final standards for heat exchange systems at existing and new sources.

TABLE 9—COMPARISON OF PROPOSED AND FINAL STANDARDS FOR HEAT EXCHANGE SYSTEMS AT EXISTING AND NEW SOURCES

Source	Pollutant	Proposed leak action level	Proposed monitoring frequency	Final leak action level	Final monitoring frequency
Existing	Total strippable VOC	38 ppbw in cooling water or 2.9 ppmv in stripping gas.	Monthly	50 ppbw in cooling water or 3.9 ppmv in stripping gas.	Monthly.
	Vinyl chloride	NA	NA	50 ppbw in cooling water	Monthly.
New	Total strippable VOC	30 ppbw in cooling water or 2.3 ppmv in stripping gas.	Every 12 hours	50 ppbw in cooling water or 3.9 ppmv in stripping gas.	Monthly.
	Vinyl chloride	NA	NA	50 ppbw in cooling water	Monthly.

NA—not applicable.

We have clarified in the final rule that heat exchange systems that are in HAP service and that have a maximum cooling water flow rate of greater than 10 gallons per minute are required to monitor for leaks.

6. Other Emission Sources

In addition to proposing requirements for reactor opening losses in the proposed rule, we solicited comment and additional information on emissions, controls and costs of controls for gasholders. Based on our review of comments, and analysis of methods to control emissions from gasholders, the final rule requires that emissions from gasholder vents be routed back into the process or vented through a closed vent system to a control device. Affected sources must also install floating objects on gasholder water seals to reduce emissions of vinyl chloride and other HAP from those seals.

D. Initial and Continuous Compliance, and Recordkeeping and Reporting

The final rule contains several changes to the compliance, recordkeeping and reporting requirements.

1. Process Vents

At proposal, affected sources were required to conduct performance tests for process vents on an annual basis. In the final rule, performance tests must be conducted once every 5 years since the continuous parametric monitoring requirements ensure compliance on a continuous basis.

In the final rule, we have established two subcategories for process vents: PVC-only and PVC combined. As at proposal, the final rule also requires that all gaseous streams from process vents must be routed into a closed vent system and sent to a control device in order to meet the PVC-only or PVC-combined emission limits. We are also requiring that each process vent stream must be characterized by developing an emission profile. This is to ensure that process vent streams are serving a valid process purpose and are not being diluted prior to control. We expect facilities to already have inventories and previous test results available to develop their emissions profile. All of the facilities that provided information in response to the August 21, 2009, PVC CAA section 114 survey, developed emission profiles. Additionally, we are allowing the emissions profile to be based on engineering assessment or measurement. Because of these reasons, we do not anticipate additional burden from this requirement. We have also clarified the definitions for process vent, continuous process vent, batch process vent and have added a definition for miscellaneous vent. These revised and new definitions are described in more detail in section V.I of this preamble.

In the proposed rule, new affected sources were required to install and operate CDD/CDF continuous emission monitoring systems (CEMS) after the promulgation of a performance specification. New sources were also required to install and operate HCl CEMS. The requirements to install and operate CDD/CDF CEMS and HCl CEMS have been removed as requirements since the continuous parameter monitoring system (CPMS) requirements are sufficient but both CEMS remain available as options to existing and new affected sources when the specifications are promulgated.

2. Stripped Resins

In the proposed rule, affected sources were required to demonstrate compliance with the vinyl chloride limits for stripped resin using EPA SW–846 Method 8260B. In the final rule, affected sources must demonstrate compliance with the vinyl chloride stripped resin limit using EPA Method 107 because it is a better measure of the concentration of vinyl chloride in resin and was specifically developed to be used to measure vinyl chloride concentration in stripped PVC resins. The final rule requires affected sources to demonstrate compliance with a total non-vinyl chloride organic HAP limit using the combination of four EPA SW–846 Methods: 8015C, 8260B, 8270D and 8315A.

In the final rule, we have removed all requirements for continuous parametric monitoring of resin strippers. Our rationale for this is explained in detail in section V.F.3 of this preamble.

3. Wastewater

The final rule contains separate requirements for process wastewater and maintenance wastewater. For process wastewater, we removed the requirement that a wastewater stream must be treated and meet certain HON requirements if its flow rate is greater than or equal to 10 liters per minute or contains a total HAP concentration greater than 1,000 parts per million by

weight (ppmw). Instead, affected sources must initially test all untreated process wastewater streams and meet the vinyl chloride and total non-vinyl chloride organic HAP limits in the final rule prior to discharge. We have clarified the requirements for process wastewater including the requirements for determining which streams require treatment to meet the process wastewater emission limits. Consequently, we have removed the terms ''point of generation'' and ''point of determination'' from the final rule.

In the proposed rule, affected sources were required to determine the concentration of vinyl chloride and total HAP on a monthly basis for streams that did not require treatment to ensure that their HAP concentrations remained below the applicability criteria. For the final rule, affected sources are required to determine the concentration of vinyl chloride and total non-vinyl chloride organic HAP on an annual basis for streams that do not require treatment.

In the final rule, we have added a requirement that affected sources must comply with the HON maintenance wastewater compliance requirements of 40 CFR 63.105 of subpart F.

In the final rule, we have removed all requirements for continuous parametric monitoring of wastewater steam strippers. Our rationale for this is explained in detail in section V of this preamble.

4. Heat Exchange Systems

We proposed that affected sources would have the option of using the TCEQ Modified El Paso Method or EPA SW–846 Method 8021B to monitor for leaks of VOC in their heat exchange system cooling water. In the final rule, we have retained the option to monitor total strippable VOC in the stripping gas using the TCEQ Modified El Paso Method, but for cooling water monitoring, we are requiring EPA Method 624. The final rule also includes an option for facilities to monitor their cooling water for vinyl chloride using EPA Method 107. The final rule requires the same leak action level for both new and existing sources, depending on which monitoring method is used.

5. Other Emission Sources

In the final rule, we are requiring emissions from gasholder vents be routed back into the process or vented through a closed vent system to a control device meeting the compliance requirements for process vents. To minimize fugitive emissions from gasholder water seals, we are also requiring the use of floating objects on the surface of water seals. Affected sources must establish operating procedures for use of floating devices in gasholders. These operating procedures must describe how the floating objects will be maintained to ensure a reduction in fugitive emissions from the gasholder's water seal.

E. Area Source Requirements

We proposed GACT standards for PVC area sources based on the proposed MACT standards for major sources. For the final rule, we have updated our analysis of area source GACT, considering comments received, including our analysis of cost considerations. Our revised GACT analysis assesses each PVC emission point (*e.g.,* process vents, stripped resin, equipment leaks, etc.) individually, for both existing and new sources, to determine the appropriate level of control considering cost and emission reduction. The GACT analysis was conducted for the same subcategories as major sources. A discussion of the GACT analysis is presented in section V.H of this preamble.

We have determined emission limits based on the control level that area sources are currently meeting to be GACT for existing and new area sources for PVC-only process vents, PVC-combined process vents, bulk resin, suspension resin, and process and maintenance wastewater. For other resin subcategories (*i.e.,* dispersion, suspension blending and copolymer), no existing area source produces these resins. For the dispersion subcategory, we determined GACT based on the least-controlled major source control level at existing major sources in that subcategory. GACT for the suspension blending and copolymer subcategories is based on the existing major source control levels for the single facility in each subcategory from which we determined the MACT floors. For all other emission points, *i.e.,* equipment leaks, heat exchange systems and other emission sources, we have determined that GACT should be the same work practice standards being adopted as MACT for major sources. We are also adopting the same testing and monitoring requirements that apply to major sources. Major source requirements are discussed in section IV of this preamble.

F. New and Revised Definitions

Several definitions were revised and added in the final rule as a result of new subcategories and other changes. The following definitions have been revised since the proposal: Batch process vent, conservation vent, continuous process vent, grade, in HAP service, polyvinyl chloride, polyvinyl chloride and copolymers production process unit or PVCPU, polyvinyl chloride copolymer, pressure relief device (PRD), process vent, solution process, surge control vessel, treatment process, type of resin and wastewater.

The following definitions have been added in the final rule: Gasholder, heat exchanger exit line, maintenance wastewater, miscellaneous vent, polyvinyl chloride homopolymer, process wastewater, process wastewater treatment system, PVC-combined process vent, PVC-only process vent, suspension blending process, table 10 HAP, total non-vinyl chloride organic HAP and wastewater stream. The rationale for revising and adding the definitions is provided in section V.I of this preamble.

IV. Summary of the Final Rules

A. What is the affected source?

The final rules apply to owners or operators of PVCPU located at both major source and area sources of HAP emissions, as defined in 40 CFR 63.2. The subparts apply to each affected source, where the affected source is the facility wide collection of PVCPU, storage tanks, surge control vessels, heat exchange systems, wastewater and process wastewater treatment systems that are associated with producing PVC. A new affected source is one for which construction commenced after May 20, 2011, at a Greenfield facility or at an existing facility that did not previously produce PVC prior to May 20, 2011. If components of an existing affected source are replaced, such that the replacement meets the definition of reconstruction in 40 CFR 63.2 and the reconstruction commenced after May 20, 2011, then the existing source becomes a reconstructed source and is subject to the relevant standards for a new affected source. The reconstructed source must comply with the requirements for a new affected source upon initial startup of the reconstructed source, or by April 17, 2012, whichever is later.

A PVCPU is defined as a collection of process components assembled and connected by hard-piping or duct work, used to process raw materials and to manufacture polyvinyl chloride and/or polyvinyl chloride copolymers. The collection of process components includes polymerization reactors, resin stripping operations, resin blend tanks, resin centrifuges, resin dryers, resin product separators, recovery devices, reactant and raw material charge vessels and tanks, holding tanks, mixing and weighing tanks, finished resin product

loading operations, connected ducts and piping, combustion, recovery, or recapture devices or systems and equipment (*i.e.,* all pumps, compressors, agitators, PRD, sampling connection systems, open-ended valves or lines, valves, connectors and instrumentation systems that are associated with the PVCPU). A PVCPU does not include chemical manufacturing process units, as defined in 40 CFR 63.101, which produce VCM or other raw materials used in the production of PVC.

B. When must I comply with the major and area source standards?

Existing major affected sources are required to comply with 40 CFR part 63, subpart HHHHHHH and existing area affected sources are required to comply with 40 CFR part 63, subpart DDDDDD no later than April 17, 2015. New major and area affected sources are required to comply on April 17, 2012, or upon startup, whichever is later.

C. What is the relationship between this final rule for major sources and the 40 CFR part 61, subpart F standards?

Affected sources are currently subject to requirements in the part 61 NESHAP. This final rule includes requirements that are at least as stringent as the requirements in the part 61 NESHAP. Thus, once an affected source is in compliance with 40 CFR part 63, subpart HHHHHHH, the requirements of the part 61 NESHAP will no longer apply.

D. Are there subcategories for major sources?

The final rule contains two subcategories for process vents. The process vent subcategories are based on whether the vent streams are collected from: (1) Only PVC production processes (*i.e.,* PVC-only process vents) or (2) PVC production process and other non-PVC production processes, such as VCM or EDC manufacturing (*i.e.,* PVC-combined process vents).

The final rule contains five subcategories for limits on the amount of HAP remaining in resin following polymerization and stripping (*i.e.,* the stripped resin). The stripped resin subcategories are based on the type of resin produced, and include the following homopolymer resins: (1) Bulk resin, (2) dispersion resin, (3) suspension blending resin and (4) suspension resin. A fifth subcategory is included in the final rule for all copolymer resins.

See section V.D of this preamble for more discussion on subcategories.

E. What emission standards must I meet for major sources?

This rule establishes requirements for affected sources located at or part of a major source of HAP emissions. We explain our rationale for the finalized standards in section V.E of this preamble.

1. Storage Vessels and Handling Operations

Under 40 CFR 63.11910 and Table 3 of the final rule, if you own or operate a storage vessel at a new or existing affected source, we are requiring that material stored with a maximum true vapor pressure of greater than 11.1 pounds per square inch absolute (psia) be stored in pressure vessels with no emissions to the atmosphere. During those times when purging is required or when the pressure vessel is being loaded, the purged stream or the emission stream during loading is required to be routed to a closed vent system and control device. The closed vent system and control device must meet the requirements specified in 40 CFR 63.11925 through 40 CFR 63.11950 of the final rule. You are also required to equip all openings in the pressure vessel with closure devices that are designed to operate with no detectable emissions, as determined using procedures specified in 40 CFR 63.11910(c)(3) of the final rule.

For storage vessels with a capacity greater than or equal to 40,000 gallons that store material with a maximum true vapor pressure greater than or equal to 0.75 psia or storage vessels with a capacity greater than or equal to 20,000 gallons (but less than 40,000 gallons) that store materials with a maximum true vapor pressure greater than or equal to 4 psia, we are requiring compliance with one of two equivalent compliance options. We are requiring that material be stored in either: (1) A floating roof tank meeting the operating, inspection and maintenance requirements of 40 CFR part 63, subpart WW, or (2) a fixed roof storage vessel that routes vent streams to a closed vent system and control device (meeting the requirements of 40 CFR 63.11925 through 40 CFR 63.11950 of the final rule) capable of reducing inlet VOC emissions by 95 percent or greater.

We are requiring that all other storage vessels meet the operating, inspection and maintenance requirements for fixed roof vessels of 40 CFR 63.11910(a) of the final rule or comply with either the controlled fixed roof or floating roof requirements discussed previously. 40 CFR 63.11910(a)(1)(ii) and 40 CFR 63.11910(a)(3)(i) of the final rule include requirements to equip each opening in the roof with a closure device, and to perform initial and annual inspections and repair any defects found within the specified time period. Defects include, but are not limited to, visible cracks, holes, gaps or other open spaces in the closure device or between the perimeter of the opening and the closure device; broken, cracked or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps or other closure devices.

2. Equipment Leaks

In 40 CFR 63.11915 of the final rule, we are requiring that existing and new affected sources comply with the LDAR program requirements of the National Emission Standards for Equipment Leaks—Control Level 2 Standards, subpart UU of 40 CFR part 63. For valves in gas and light liquid service, subpart UU specifies a leak definition of 500 ppm VOC and a monitoring frequency that is dependent upon the number of leaking valves. Subpart UU also requires equipment specifications to prevent leaks for other pieces of equipment. We are requiring that a vinyl chloride monitoring system be operated for detection of major leaks and identification of the general area of the plant where a leak is located. A vinyl chloride monitoring system is a device that obtains air samples from one or more points continuously and analyzes the samples with gas chromatography, infrared spectrophotometry, flame ion detection or an equivalent or alternate method.

In 40 CFR 63.11915 of the final rule, we are also requiring that, in addition to operating with no detectable emissions, there be no discharge to the atmosphere from any PRD on any equipment in HAP service within the PVC affected source. We are requiring that, upon a discharge to the atmosphere from the PRD, that the monitoring requirements specified in 40 CFR part 63, subpart UU for pressure releases from PRD be followed.

3. Heat Exchange Systems

In 40 CFR 63.11920 of the final rule, we are requiring that you implement a LDAR program to detect leaks of HAP into cooling water. For both new and existing sources, we are requiring monthly monitoring for both closed loop and once-through heat exchange systems using either the TCEQ Modified El Paso Method, EPA Method 624 or EPA Method 107. The leak action level is 50 ppbw of total strippable VOC or vinyl chloride in the cooling water, or a leak action level of 3.9 ppmv in the stripping gas. The delay of repair action

level for both new and existing sources is 500 ppbw of total strippable VOC or vinyl chloride in the cooling water, or 39 ppmv of VOC in the stripping gas. When a leak is identified, additional monitoring must be performed to isolate the source of the leak. If the total strippable VOC or vinyl chloride concentration remains below the applicable leak action level throughout the period of additional monitoring, then repairs are not required; otherwise, repairs must be completed within 45 days of identifying the leak. Repairs may be delayed if the concentration of total strippable VOC or vinyl chloride in the cooling water remains below the delay of repair action level and either: (1) It is technically infeasible to repair the leak without a shutdown, or (2) the necessary equipment, parts or personnel are not available.

4. Process Vents

In 40 CFR 63.11925 of the final rule, we are requiring all process vents be routed to a closed vent system and control device meeting the emission standards in Table 10 of this preamble. All process vents must meet the emission standards, including continuous process vents, batch process vents and miscellaneous vents.

We are requiring the emission limitations presented in Table 10 of this preamble for two subcategories of process vents at major sources: (1) PVC-only process vents and (2) PVC-combined process vents. These emission limits apply at all times.

TABLE 10—EMISSION LIMITS FOR PROCESS VENTS AT EXISTING AND NEW MAJOR SOURCES

Subcategory	Pollutant	Emission limitations [a]	
		Existing sources	New sources
PVC-only process vents	Vinyl chloride	6.0 ppmv	0.56 ppmv.
	Hydrogen chloride	78 ppmv	0.17 ppmv.
	Total hydrocarbons (THC) [b]	9.7 ppmv as propane	7.0 ppmv as propane.
	Total organic HAP [b]	56 ppmv	5.5 ppmv.
	Dioxin/Furans (TEQ)	0.038 ng/dscm	0.038 ng/dscm.
PVC-combined process vents	Vinyl chloride	1.1 ppmv	0.56 ppmv.
	Hydrogen chloride	380 ppmv	1.4 ppmv.
	Total hydrocarbons (THC) [b]	4.2 ppmv as propane	2.3 ppmv as propane.
	Total organic HAP [b]	9.8 ppmv	5.5 ppmv.
	Dioxin/Furans (TEQ)	0.051 ng/dscm	0.034 ng/dscm.

[a] ppbv = parts per billion by volume dry at 3-percent oxygen (O_2). ppmv = parts per million by volume dry at 3-percent O_2. ng/dscm = nanograms per dry standard cubic meter at 3-percent O_2.
[b] Total organic HAP is an alternative compliance limit for THC.

5. Other Emission Sources

Other emission sources include reactor and other component opening losses and gasholders. When reactors or other components (including pre-polymerization reactors used in the manufacture of bulk resin) are opened for cleaning, we are requiring in 40 CFR 63.11955 of the final rule that emissions be minimized prior to opening. We are requiring that emissions from opening a polymerization reactor must not exceed 0.04 pound vinyl chloride/ton of polyvinyl chloride product where the product means the gross product of pre-polymerization and post-polymerization. We are requiring emissions from opening of process components for any reason be minimized by reducing the volume of vinyl chloride to an amount that occupies a volume of no more than 2.0 percent of the component's containment volume or 25 gallons, whichever is larger, at standard temperature and pressure. Any vinyl chloride emissions resulting from opening equipment must be ducted through a closed vent system to a control device meeting the process vent limits of the final rule. The outlet of the control device must meet the emission limitations for process vents discussed in section IV.E.4 of this preamble.

In 40 CFR 63.11955 of the final rule, we are requiring that emissions from gasholders must either be routed back into the process or be vented to a closed vent system and control device from which the exhaust gases do not exceed the process vent limits. To minimize fugitive emissions from gasholder water seals, we are also requiring the use of floating objects on the surface of the water seal. Each gasholder must operate with one or more types of objects installed on the surface of the water seal to reduce emissions from those seals, including floating balls, hollow floating disks, an oil layer and/or floating mats.

6. Stripped Resin

In 40 CFR 63.11960 of the final rule, we are setting emission limits for vinyl chloride and total non-vinyl chloride organic HAP for five subcategories of stripped resins, as presented in Tables 11 and 12 of this preamble. The limits were developed for new and existing affected sources, based on the type of resin produced. Subcategories for homopolymer resins are: (1) Bulk resin, (2) dispersion resin, (3) suspension blending resin and (4) suspension resin. A fifth subcategory is included in the final rule for copolymer resin. These emission limits would apply at all times.

TABLE 11—LIMITS FOR STRIPPED RESINS AT EXISTING MAJOR SOURCES

Pollutant	Emission limits (ppmw)				
	Homopolymer resins				Copolymer resin
	Bulk resin	Dispersion resin	Suspension resin	Suspension blending resin	
Vinyl chloride	7.1	1,300	37	140	790

TABLE 11—LIMITS FOR STRIPPED RESINS AT EXISTING MAJOR SOURCES—Continued

Pollutant	Emission limits (ppmw)				
	Homopolymer resins				Copolymer resin
	Bulk resin	Dispersion resin	Suspension resin	Suspension blending resin	
Total non-vinyl chloride organic HAP	170	240	670	500	1,900

TABLE 12—LIMITS FOR STRIPPED RESINS AT NEW MAJOR SOURCES

Pollutant	Emission limits (ppmw)				
	Homopolymer resins				Copolymer resin
	Bulk resin	Dispersion resin	Suspension resin	Suspension blending resin	
Vinyl chloride	7.1	480	7.3	140	790
Total non-vinyl chloride organic HAP	170	66	15	500	1,900

7. Wastewater

In 40 CFR 63.11965 of the final rule, we are requiring process wastewater streams at existing sources to meet emission limits of 6.8 ppmw for vinyl chloride and 110 ppmw for total non-vinyl chloride organic HAP before being exposed to the atmosphere, discharged from the affected source or discharged from the affected source untreated as wastewater. Process wastewater streams at new sources are required to meet emission limits of 0.28 ppmw for vinyl chloride and 0.018 ppmw for total non-vinyl chloride organic HAP before being exposed to the atmosphere, discharged from the affected source or discharged from the affected source untreated as wastewater. Pollutant concentrations in each process wastewater stream at existing and new sources must be measured immediately as the process wastewater stream leaves a process component, before being exposed to the atmosphere and before mixing with any other wastewater stream.

The final rule contains separate requirements for maintenance wastewater. Maintenance wastewater must meet the requirements of 40 CFR 63.105.

F. What are the initial and continuous compliance requirements for major sources?

In 40 CFR 63.11896 of the final rule, we are requiring that, if you make a process change to an existing affected source that does not meet the criteria to become a reconstructed affected source in 40 CFR 63.11870(e) of the final rule, you must be in compliance for any added or changed emission points by the compliance date for existing affected sources. If the process change occurs after the compliance date for existing sources, then the added or changed emissions point must be in compliance upon startup. If the process change results in a change in the characteristics of any emission point such that a different emission standard or operating parameter limit applies, we are requiring that you demonstrate that the changed emission point complies with the applicable requirements for an existing affected source. You must demonstrate compliance with any emission limits and establish applicable operating limits by 180 days after the compliance date for existing affected sources; if the startup of the changed emission point occurs after the compliance date for existing affected sources, then you must demonstrate compliance with any emission limits and establish applicable operating limits by 180 days after the date of initial startup of the changed emission point.

We are also requiring that, if you make a process change to a new affected source, you demonstrate that any added emission points are in compliance with the applicable standards for a new affected source by startup of the changed emission point. You must also demonstrate initial compliance with any emission limits and establish applicable operating limits by 180 days after the date of initial startup of the changed process unit.

If you make a process change that adds or changes emission points, we are requiring that you demonstrate continuous compliance with your emission standards and operating limits according to the procedures and frequency in 40 CFR 63.11910 through 40 CFR 63.11980 of this final rule and submit a notification report specified in 40 CFR 63.11985 of the final rule.

A facility subject to the PVC-combined process vent limits that no longer combines process vent streams from other source categories, or a facility that is subject to the PVC-only process vent limits that subsequently combines process vent streams from other source categories, is subject to the process change requirements in 40 CFR 63.11896 of the final rule. Routine and maintenance shutdowns that cause temporary cessation of the vent stream flow from other source categories are not subject to the process change requirements.

1. What are the initial and continuous compliance requirements for storage vessels?

For each floating roof storage vessel, we are requiring that you meet the operating, inspection, repair and maintenance requirements of 40 CFR part 63, subpart WW. For each fixed roof storage tank venting through a closed vent system to a control device achieving 95-percent reduction in total HAP emissions, we are requiring that you meet the requirements for closed vent systems and control devices in 40 CFR 63.11925 of the final rule and summarized in section IV.F.4 of this preamble.

In 40 CFR 63.11910 of the final rule, we are also requiring that, for each fixed roof tank, you install and maintain the tank with no visible cracks, holes or other open spaces between roof section joints or between the interface of the roof edge and the tank wall. We are also requiring that you install closure devices that you secure in the closed position except during periods when you need to have access to the interior of the fixed roof tank. The closure device may be opened during the period

needed to provide access. The fixed roof tank and its closure device are required to be inspected initially and at least once per year. The inspection requirements are not applicable to parts of the fixed roof that are determined to be unsafe to inspect if you document and explain why it is unsafe to inspect and develop a plan to conduct inspections when the tank is not in service. A first attempt to repair defects must be made no later than 5 calendar days after detection and repairs are required to be completed no later than 45 days after detection, except as specified in 40 CFR 63.11910(a)(4)(ii) of the final rule.

In 40 CFR 63.11910 of the final rule, for pressure vessels, we are requiring that all potential leak interfaces in the pressure vessel be monitored for leaks annually and repaired following the procedures of 40 CFR 63.11915 of the final rule.

2. What are the initial and continuous compliance requirements for equipment leaks?

For each applicable piece of equipment (*e.g.,* valves, connectors) associated with your affected source, we are requiring that you meet the LDAR requirements of 40 CFR part 63, subpart UU. In 40 CFR 63.11915 of the final rule, you are required to install a release indicator on each PRD that would be able to identify and record the time and duration of each pressure release and notify operators that a pressure release has occurred.

3. What are the initial and continuous compliance requirements for heat exchange systems?

We are requiring that, for each affected source, you must operate a heat exchange system monitoring program, as specified in the final rule. Under the compliance requirements for heat exchange systems in 40 CFR 63.11920 of the final rule, an affected source is required to conduct sampling and analyses for either total strippable VOC using the TCEQ Modified El Paso Method or EPA Method 624, or for vinyl chloride using EPA Method 107. Affected sources must monitor no less frequently than monthly and fix any leaks detected. We are requiring different sampling locations for once-through and closed loop heat exchange systems, as specified in 40 CFR 63.11920 of the final rule. For once-through systems only, you may monitor at the cooling tower return line prior to exposure to the air or you may monitor the inlet water feed line prior to any heat exchange. If multiple heat exchange systems use the same water feed (*i.e.,* inlet water from the same primary water source), you may monitor at one representative location and use the monitoring results for that sampling location for all heat exchange systems that use that same water feed. For once-through systems, you must monitor selected heat exchanger exit line(s) so that each heat exchanger or group of heat exchangers within a system is covered by the selected monitoring location. Monitoring of selected heat exchanger exit lines is also a monitoring option for closed loop systems.

We are exempting a heat exchange system from the monitoring requirements in 40 CFR 63.11920 if all heat exchangers within the heat exchange system operate with the minimum pressure on the cooling water side at least 35 kilopascals greater than the maximum pressure on the process side, the heat exchange system does not contain any heat exchangers that are in HAP service, or the heat exchange system has a maximum cooling water flow rate of 10 gallons per minute or less.

Identified leaks must be repaired as soon as practicable, but within 45 days after identifying the leak. We are allowing delay of repair as long as the total strippable VOC concentration is below 39 ppmv in the stripping gas or below 500 ppbw in the cooling water, or the vinyl chloride concentration in the cooling water is below 500 ppbw and other criteria are met. Specifically, leaking heat exchanger repairs may be delayed if the repair is technically infeasible without a shutdown or the necessary equipment, parts or personnel are not available. To delay repairs in either case, the total strippable VOC or vinyl chloride concentration must initially be, and remain less than, the delay of repair action level for all monitoring periods during the delay of repair.

4. What are the initial and continuous compliance requirements for process vents?

To demonstrate compliance for process vents, you are required to meet the requirements of final 40 CFR 63.11930 for each closed vent system that routes emissions from process vents to a control device. You are required to meet the initial and continuous compliance requirements for process vents specified in 40 CFR 63.11925 and 40 CFR 63.11935, the monitoring requirements for your process vent control device, as specified in 40 CFR 63.11940 and the performance testing requirements for process vents in 40 CFR 60.11945. You may not use a flare to comply with the emission limits of the final rule, as specified in 40 CFR 63.11925(b).

As specified in 40 CFR 63.11925(g), affected sources are required to characterize their process vents by developing an emission profile that describes the characteristics of the process vent stream under either absolute or hypothetical worst-case conditions. In 40 CFR 63.11950, we have provided equations to develop the emissions profile for each batch process vent, including equations for vapor displacement, gas sweep of a partially filled vessel, heating, depressurization, vacuum systems, gas evolution, air drying and purging. All other emissions or emissions episodes for the emissions profile would be determined through an engineering assessment or through testing approved by the Administrator. See 40 CFR 63.11950(i) of the final rule.

Closed vent systems. In 40 CFR 63.11930 of the final rule, for closed vent systems, you are required to meet specified design requirements and install flow indicators in the bypass lines or meet other requirements to prevent and detect bypass of the control device. You must also follow the inspection, leak monitoring and repair requirements in 40 CFR 63.11930 of the final rule for closed vent systems. Closed vent systems in vacuum service are required to install alarms rather than performing leak inspection and monitoring. If you operate a closed vent system in vacuum service, you are not required to comply with the other closed vent system requirements in the final rule.

Performance testing, continuous parameter monitoring system (CPMS) and continuous emission monitoring system (CEMS) requirements for process vents and associated control devices. Compliance is demonstrated through a combination of performance testing (as specified in 40 CFR 63.11925 and 40 CFR 63.11945) and/or monitoring using CPMS and/or CEMS that measure process vent control device operating parameters (as specified in 40 CFR 63.11925, 40 CFR 63.11935 and 40 CFR 63.11940). These sections also refer to Tables 1, 2, 5, 7 and 8 of the final rule for emission limits, testing methods and requirements. Below, we summarize the process vent testing and compliance requirements by pollutant. Each performance test must consist of three test runs.

We are requiring that existing and new sources demonstrate initial compliance with the THC emission limits in Table 1 or 2 of the final rule by measuring THC at the outlet of the control device using EPA Method 25A, as specified in Table 8 of the final rule.

The minimum test run duration would be 1 hour. To demonstrate continuous compliance with the THC emission limits, each control device must be tested once every 5 years using EPA Method 25A. Alternatively, existing and new sources may demonstrate initial compliance with the total organic HAP emission limits in Table 1 or 2 of the final rule by measuring total organic HAP at the outlet of the control device using EPA Method 18 and EPA Method 320. To demonstrate continuous compliance with the total organic HAP emission limits, each control device must be tested once every 5 years using EPA Method 18 and EPA Method 320.

During the initial compliance test, you are required to establish values for the control device operating parameters specified in 40 CFR 63.11935 and 40 CFR 63.11940 (*e.g.,* oxidizer temperature). You would then use a CPMS to continuously monitor that parameter to demonstrate continuous compliance with either the THC or total organic HAP limits. New and existing sources could elect to use THC CEMS instead of establishing operating limits and using CPMS to demonstrate continuous compliance for THC emission limits. All CEMS must meet the applicable performance specifications, procedures and other calibration, accuracy and operating and maintenance requirements, as specified in 40 CFR 63.11935 of the final rule.

For vinyl chloride, you are required to demonstrate compliance by conducting an initial performance test using EPA Method 18. To demonstrate continuous compliance with the vinyl chloride emission limits, each control device must be tested once every 5 years using EPA Method 18.

For CDD/CDF, you demonstrate initial compliance by conducting a performance test using EPA Method 23 and continuous compliance by conducting performance tests using EPA Method 23 once every 5 years. The minimum sampling volume collected is 5 cubic meters for EPA Method 23. For HCl, you must demonstrate compliance by conducting an initial performance test using EPA Method 26 or 26A. The minimum sampling volumes collected is 60 liters for EPA Method 26 or 1 cubic meter for EPA Method 26A. Additionally, you are required to establish operating parameters during the initial performance test and use CPMS to continuously monitor those parameters. New and existing sources are no longer required to use CEMS but have the option of using HCl and/or CDD/CDF CEMS instead of conducting continuous parametric monitoring which is sufficient to demonstrate continuous compliance, as provided in 40 CFR 63.11925 of the final rule. All CEMS must meet the applicable performance specifications, procedures and other calibration, accuracy and operating and maintenance requirements, as specified in 40 CFR 63.11935 of the final rule.

The final rule includes specific performance testing requirements, including the process operating conditions under which performance tests should be conducted, for continuous process vents and batch operations, as provided in 40 CFR 63.11945, and discussed in sections IV.F and IV.G of this preamble.

All CPMS are required to have data averaging periods of 3-hour block averages. All CPMS are required to meet minimum accuracy and calibration frequency requirements, as specified in 40 CFR 63.11935 and Table 7 of the final rule. For each monitored parameter, you must establish a minimum, maximum or a range that indicates proper operation of the control device, as specified in 40 CFR 63.11935(d). The final rule specifies the parameters that would be monitored for each type of control device, including each oxidizer, absorber, adsorber, condenser or other control device. You must also install a flow indicator at the inlet of the control device to indicate periods of no flow to the control device.

Some control devices are subject to additional emission point-specific performance testing requirements, as described in 40 CFR 63.11945 of the final rule. We have included specific performance testing requirements for continuous process vents and batch operations, as provided in 40 CFR 63.11945 of the final rule and discussed in sections IV.F and IV.G of this preamble.

5. What are the initial and continuous compliance requirements for wastewater?

As specified in 40 CFR 63.11965(b) of the final rule, we are requiring that you conduct an initial test for process wastewater streams from the affected source to determine the vinyl chloride and the total non-vinyl chloride organic HAP concentrations. You are required to use EPA Method 107 for measuring vinyl chloride and EPA SW–846 Methods 8015C, 8260B, 8270D and 8315A for measuring total non-vinyl chloride organic HAP. For process wastewater streams that are not being treated, we are requiring that you determine which of those process wastewater streams, if any, require treatment in order to meet the wastewater emission limits. You must collect one grab sample immediately as the process wastewater stream leaves a process component and before mixing with any other wastewater stream and before being exposed to the atmosphere, discharged to a wastewater treatment process or discharged untreated as wastewater.

If your process wastewater stream contains vinyl chloride concentrations greater than or equal to 6.8 ppmw at existing sources or 0.28 ppmw at new sources or total non-vinyl chloride organic HAP concentrations greater than or equal to 110 ppmw at existing sources or 0.018 ppmw at new sources, you are required to treat the wastewater stream to achieve concentrations below these levels. We are requiring that you measure at the outlet of the treatment system by collecting one grab sample each month.

In the final rule, affected sources must comply with the requirements of 40 CFR 63.105 for maintenance wastewater streams.

For more information on the wastewater compliance requirements, see 40 CFR 63.11965, 40 CFR 63.11970 and 40 CFR 63.11975 of the final rule.

6. What are the initial and continuous compliance requirements for stripped resins?

In 40 CFR 63.11960 of the final rule, we are requiring that you conduct initial performance tests to demonstrate compliance with the vinyl chloride and total non-vinyl chloride organic HAP limits for stripped resins. We are also requiring that you conduct daily sampling and testing to demonstrate continuous compliance with the vinyl chloride limit and monthly sampling and testing to demonstrate continuous compliance with the total non-vinyl chloride organic HAP limit. The tests must be conducted at the outlet of the resin stripper for continuous processes and immediately after stripping for batch processes. You are required to use EPA Method 107 for measuring vinyl chloride and EPA SW–846 Methods 8015C, 8260B, 8270D and 8315A for measuring total non-vinyl chloride organic HAP listed in Table 10 of the final rule.

To demonstrate initial compliance with the vinyl chloride and total non-vinyl chloride organic HAP limits, you are required to collect one grab sample every 8 hours for a single grade or one grab sample per grade of PVC resin produced, whichever is more frequent, for each resin stripper over a 24-hour period. You are required to collect samples over a 24-hour period that reflects the primary product being produced, based on total mass of resin

produced in the preceding 12 months. Grade is defined in 40 CFR 63.12005 of the final rule.

To demonstrate continuous compliance with the vinyl chloride limit for a continuous process, you are required to collect one grab sample from each resin stripper every 8 hours for a single grade or one grab sample per grade of PVC resin produced, whichever is more frequent. To demonstrate compliance with the vinyl chloride limit for a batch process, you are required to collect one grab sample from each batch of resin produced. You must demonstrate compliance on a daily basis using a 24-hour grade-weighted average concentration, based on production.

To demonstrate continuous compliance with the total non-vinyl chloride organic HAP limits for a continuous process, on a monthly basis, you are required to collect one grab sample every 8 hours for a single grade or per grade of PVC resin produced, whichever is more frequent from each resin stripper over a single 24-hour period. The 24-hour arithmetic average total non-vinyl chloride organic HAP concentration for each stripper for each resin grade produced during the 24-hour sampling period must be calculated using the individual HAP concentrations measured for the grab.

To demonstrate continuous compliance with the total non-vinyl chloride organic HAP limits for a batch process, on a monthly basis, you are required to collect one grab sample for each batch of resin produced over a 24-hour period. You must demonstrate compliance on a monthly basis.

7. What are the initial and continuous compliance requirements for other emission sources?

To demonstrate compliance with the requirements for other emission sources, we are requiring that prior to opening reactors and other components, you follow the initial and continuous compliance requirements of 40 CFR 63.11955. In 40 CFR 63.11955 of the final rule, we are requiring that each gasholder must either be routed back into the process or be vented to a closed vent system and control device meeting the requirements of 40 CFR 63.11925 through 63.11950. To minimize fugitive emissions from gasholder water seals, we are also requiring the use of floating objects on the surface of the water seal. Affected sources must establish operating procedures for use of floating devices in gasholders. These operating procedures must describe how the floating objects will be maintained to ensure a reduction in fugitive emissions from the gasholder's water seal.

G. What are the performance testing requirements for batch process operations at major sources?

For batch process operations, performance tests must be conducted under the most challenging conditions that you run your batch process operations to ensure that the control device(s) is/are operating at the level needed for compliance under all conditions. Subsequent to the initial compliance test, continuous monitoring of operating parameters established during the initial test is the measure of continuous compliance with the efficiency requirement under all conditions.

H. What are the notification, recordkeeping and reporting requirements at major sources?

1. Notifications and Reports

All new and existing sources are required to comply with certain requirements of the General Provisions (40 CFR part 63, subpart A), which are identified in Table 4 of the final 40 CFR part 63, subpart HHHHHHH. The General Provisions include specific requirements for notifications, recordkeeping and reporting. Reports include notifications of initial startup, initial notification, notification of compliance status, compliance reports, notification of performance test, notification of inspection, batch pre-compliance report and other notifications and reports specified in the final 40 CFR 63.11985.

The notification of compliance status report required by 40 CFR 63.9(h) must include certifications of compliance with rule requirements.

The excess emissions and continuous system performance report and summary report required by 40 CFR 63.10(e)(3) of the NESHAP General Provisions (referred to in the rule as a compliance report) are required to be submitted semi-annually for reporting periods during which there was: An exceedance of any emission limit or a monitored parameter; a deviation from any of the requirements in the rule; or if any process changes occurred and compliance certifications were reevaluated. The final rule includes additional requirements for what you must include in these reports for each type of emission point. See 40 CFR 63.11985 of the final rule.

2. Recordkeeping

The final rule requires compiling and retaining records to demonstrate compliance with each emission standard. These recordkeeping requirements are specified either directly in the final rule, in the General Provisions to 40 CFR part 63 and in 40 CFR part 63, subparts F, UU and WW. Records that we are requiring that you keep include performance tests, records of CPMS and CEMS, records of malfunctions, records of deviations, records specific to each emission point and other records specified in 40 CFR 63.11990. The 40 CFR part 63 General Provisions requirements that apply are listed in Table 4 of the final rule. We are requiring that records be kept for 5 years in a form suitable and readily available for EPA review. We are requiring that records be kept on site for 2 years; you may keep the records off site for the remaining 3 years. See 40 CFR 63.11990 of the final rule.

I. What are the requirements for area sources?

We are revising the existing NESHAP for PVC production area sources (40 CFR part 63, subpart DDDDDD), based on the results of our GACT analysis, as explained in section V.H of this preamble. The final rule subcategorizes process vents and stripped resin at existing and new area sources in the same manner as major sources. All new and existing sources are required to comply with requirements of the General Provisions (40 CFR part 63, subpart A), are identified in Table 4 of the final 40 CFR part 63, subpart DDDDDD. The final rule contains the same notification, reporting and recordkeeping requirements for area sources as for major sources. In the final rule, performance testing requirements at batch operations as well as process change requirements, discussed in sections IV.G and IV.F of this preamble, respectively, are the same for PVC area sources as for major sources. The final rule requires area sources to meet the following requirements:

1. Storage Vessels and Handling Operations

Storage vessel and handling operations at existing and new PVC area sources are subject to the same standards and compliance requirements as major sources, as discussed in sections IV.E.1 and IV.F.1 of this preamble.

2. Equipment Leaks

Equipment leaks at existing and new PVC area sources are subject to the same standards and compliance requirements as major sources, as discussed in sections IV.E.2 and IV.F.2 of this preamble.

3. Heat Exchange Systems

Heat exchange systems at existing and new PVC area sources are subject to the same standards and compliance requirements as major sources, as discussed in sections IV.E.3 and IV.F.3 of this preamble.

4. Process Vents

PVC-only process vents and PVC-combined process vents from existing and new PVC area sources are subject to the emission limits summarized in Table 13 of this preamble. They are also subject to the same requirements as major sources for demonstrating compliance (*e.g.,* continuous parametric monitoring, performance tests, test methods, etc.), as discussed in section IV.F.4 of this preamble.

TABLE 13—EMISSION LIMITS FOR PROCESS VENTS AT EXISTING AND NEW AREA SOURCES

Subcategory	Pollutant	Emission limits [a]	
		Existing sources	New sources
PVC-only process vents	Vinyl chloride	5.3 ppmv	5.3 ppmv.
	Total hydrocarbons (THC) [b]	46 ppmv as propane	46 ppmv as propane.
	Total organic HAP [b]	140 ppmv	140 ppmv.
	Dioxin/Furans (TEQ)	0.13 ng/dscm	0.13 ng/dscm.
PVC-combined process vents	Vinyl chloride	0.56 ppmv	0.56 ppmv.
	Total hydrocarbons (THC) [b]	2.3 ppmv as propane	2.3 ppmv as propane.
	Total organic HAP	29 ppmv	29 ppmv.
	Dioxin/Furans (TEQ)	0.076 ng/dscm	0.076 ng/dscm.

[a] ppmv = parts per million by volume dry at 3-percent oxygen (O_2).
ng/dscm = nanograms per dry standard cubic meter at 3-percent O_2.
[b] Total organic HAP is an alternative compliance limit for THC.

5. Other Emission Sources

Other emission sources include reactor and other component opening losses and gasholders. These emission sources at existing and new PVC area sources are subject to the same standards and compliance requirements as major sources, as discussed in section IV.E.5 and IV.F.7 of this preamble.

6. Stripped Resins

Stripped resins at new and existing area sources are subject to the emission limits summarized in Table 14 of this preamble. They are also subject to the same compliance requirements as major sources, as discussed in sections IV.E.6 and IV.F.6 of this preamble. The two existing area sources produce bulk and suspension resins and we have established GACT limits for those resin subcategories based on data for the two area sources. However, as discussed in section V of this preamble, existing major sources may have the potential to become synthetic area sources by taking federally enforceable permit limits before the first substantive compliance date of this rule. Therefore, we are also setting existing area source limits for dispersion resin, suspension blending resin and copolymer resin. We are also establishing limits for new area sources based on the type of resin that could potentially be produced: (1) Bulk resin, (2) dispersion resin, (3) suspension blending resin, (4) suspension resin and (5) copolymer resin.

TABLE 14—EMISSION LIMITS FOR STRIPPED RESINS AT NEW AND EXISTING AREA SOURCES

Subcategory	Pollutant	Emission limits (ppmw)	
		Existing sources	New sources
Bulk resin	Vinyl chloride	7.1	7.1
	Total non-vinyl chloride organic HAP	170	170
Suspension	Vinyl chloride	36	36
	Total non-vinyl chloride organic HAP	36	36
Dispersion	Vinyl chloride	1,500	1,500
	Total non-vinyl chloride organic HAP	320	320
Suspension blending	Vinyl chloride	140	140
	Total non-vinyl chloride organic HAP	500	500
Copolymer	Vinyl chloride	790	790
	Total non-vinyl chloride organic HAP	1,900	1,900

7. Wastewater

In the final rule, we are requiring that process wastewater streams at existing and new PVC area sources reduce the concentration of vinyl chloride and total non-vinyl chloride organic HAP, measured immediately as the process wastewater stream leaves a process component and before mixing with any other wastewater stream, to no more than the levels specified in Table 15 of this preamble. We are also requiring that wastewater streams from existing and new PVC area sources meet the same requirements for demonstrating compliance as major sources including maintenance wastewater work practices, as discussed in section IV.F.5 of this preamble.

TABLE 15—LIMITS FOR PROCESS WASTEWATER AT NEW AND EXISTING AREA SOURCES

Pollutant	Emission limits (ppmw)
Vinyl chloride	2.1
Total non-vinyl chloride organic HAP	0.018

J. What are the electronic data submittal requirements?

The EPA must have performance test data to conduct effective reviews (*e.g.,* risk assessment) of CAA section 112 standards, as well as for many other purposes, including compliance determinations, emission factor development and annual emission rate determinations. In conducting these reviews, the EPA has found it ineffective and time consuming, not only for us, but also for regulatory agencies and source owners and operators to locate, collect and submit emissions test data in paper form because of varied locations for data storage and varied data storage methods. In recent years though, stack testing firms have typically collected performance test data in electronic format, making it possible to move to an electronic data submittal system that would increase the ease and efficiency of data submittal and improve data accessibility.

In the final rule, the EPA is including a step to increase the ease and efficiency of data submittal and improve data accessibility. Specifically, we are requiring owners and operators of PVC production facilities to submit electronic copies of certain required performance test reports to the EPA's WebFIRE database. The WebFIRE database was constructed to store performance test data for use in developing emission factors. A description of the WebFIRE database is available at *http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main*.

Data entry will be through an electronic emissions test report structure called the Electronic Reporting Tool (ERT). The ERT will generate an electronic report that will be submitted using the Compliance and Emissions Data Reporting Interface (CEDRI). The report is submitted through EPA's Central Data Exchange (CDX) network for storage in the WebFIRE database making submittal of data very straightforward and easy. A description of the ERT can be found at *http://www.epa.gov/ttn/chief/ert/index.html* and CEDRI can be accessed through the CDX Web site (*www.epa.gov/cdx*).

The requirement to submit source test data electronically to the EPA does not create any additional performance testing and applies only to those performance tests conducted using test methods that are supported by the ERT. The ERT contains a specific electronic data entry form for most of the commonly used EPA reference methods. A listing of the pollutants and test methods supported by the ERT is available at *http://www.epa.gov/ttn/chief/ert/ert_tool.html*. Industry will benefit from this approach to electronic data submittal. Having these data, the EPA will be able to develop improved emission factors, make fewer information requests and promulgate better regulations. The information to be reported is already required for the existing test methods and is necessary to evaluate the conformance to the test method.

One major advantage of submitting source test data through the ERT is that it will provide a standardized method to compile and store much of the documentation required to be reported by this final rule. Another advantage is that the ERT clearly states what testing information is required.

Another important benefit of submitting these data to the EPA at the time the source test is conducted is that it should substantially reduce the effort involved in data collection activities in the future. When the EPA has performance test data in hand, there will likely be fewer or less substantial data collection requests in conjunction with prospective required residual risk assessments or technology reviews. This would result in a reduced burden on both affected facilities (in terms of reduced manpower to respond to data collection requests) and the EPA (in terms of preparing and distributing data collection requests and assessing the results).

State, local and tribal agencies may also benefit from the more streamlined and accurate review process created by an electronic review process rather than a manual data assessment, making review and evaluation of the source provided data and calculations easier and more efficient. Finally, another benefit of the data submittal to WebFIRE electronically is that these data would greatly improve the overall quality of existing and new emissions factors by supplementing the pool of emissions test data for establishing emissions factors and by ensuring that the factors are more representative of current industry operational procedures. A common complaint heard from industry and regulators is that emission factors are outdated or not representative of a particular source category. With timely receipt and incorporation of data from most performance tests, the EPA would be able to ensure that emission factors, when updated, represent the most current range of operational practices. In summary, consistent with Executive Order 13563, *Improving Regulation and Regulatory Review,* issued on January 18, 2011, in addition to supporting regulation development, control strategy development and other air pollution control activities, having an electronic database populated with performance test data should save industry, state, local, tribal agencies and the EPA significant time, money and effort, while also improving the quality of emission inventories and, as a result, air quality regulations.

V. Significant Public Comments and Rationale for Changes to the Proposed Rule

This section contains a summary of major comments and responses, and rationale for changes made to the proposed rule. The EPA received many comments covering numerous topics. The EPA's responses to those comments can be found either in this preamble or in the *National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production: Summary of Public Comments and Responses,* in the PVC docket (EPA–HQ–OAR–2002–0037).

A. Affected Sources

Comment: Two commenters requested clarification on the applicability of the EPA's definition of ''new source.'' One commenter pointed out that if a PVC manufacturing company were planning to commence construction of a new line, based on the proposed rule, the new line would trigger ''new source'' requirements regardless of the magnitude of HAP emissions.

Response: We believe that we have adequately addressed the concerns raised by the commenter by the way we have revised the definition of a new affected source because the addition of a PVCPU does not necessarily trigger a new affected source. In the proposed rule, the affected source was defined as each individual PVCPU, and a new affected source was a PVCPU for which construction commenced on or after May 20, 2011, at a major or area source. The proposed rule also required that, if components of an existing affected source were replaced such that the replacement met the definition of reconstruction in 40 CFR 63.2 and the reconstruction commenced on or after May 20, 2011, then that existing source becomes a reconstructed source and is subject to the relevant standards for a new affected source.

Under the proposed rule, the affected source was each PVCPU, but a PVCPU was defined to include all equipment connected by shared piping, including equipment that is typically shared by multiple units, such as heat exchangers and wastewater treatment systems. By defining a PVCPU in this manner, according to the commenter the rule

could be interpreted to mean that a change to any existing PVCPU such that it becomes subject to new source requirements or the addition of a new PVCPU could require existing affected sources also to comply with the more stringent new source standards. For example, if the facility chose to comply with the emission limits for the new PVCPU unit using an existing control device that also controlled emissions from other existing PVCPU, then all the PVCPU routing to that control device would have to meet the new source emissions limit because there would be no way to differentiate the streams at the control device. Because it might not be technically possible for existing PVCPU to meet the new source requirements, the alternative would be to construct dedicated controls or supporting process equipment for new sources. The same situation would apply to other shared equipment, such as heat exchangers and wastewater treatment. We did not intend such a result when we proposed the definitions of affected source and new source in 40 CFR 63.11870.

In light of the comments received, we are modifying the affected source definition to avoid the unintended results identified by the commenters with regard to the requirements for new sources.

In the final rule, the existing affected source is the facility-wide collection of all PVCPU, storage vessels, surge control vessels, heat exchange systems, wastewater and process wastewater treatment systems that are associated with producing PVC. A new affected source is any one of the following situations:

- All PVCPU, storage vessels, surge control vessels, heat exchange systems, wastewater and process wastewater treatment systems that are associated with producing PVC and are constructed at a Greenfield facility after May 20, 2011; or that are located at an existing facility that did not previously produce PVC prior to the rule proposal but has undergone process changes to start producing PVC.
- Reconstructed affected source.

Notwithstanding whether other approaches have been taken in other rules, the PVC NESHAP rule applies to a narrower selection of processes than HON or the Miscellaneous Organic Chemical Manufacturing NESHAP (MON), and we concluded that the affected source and new source definitions in the final rule are reasonable for the PVC industry. These edits clarify the requirements for new and existing sources and any further changes, such as defining threshold limits, are not necessary.

B. Overlapping Rules

Comment: Commenters expressed concern about overlapping requirements between the PVC MACT and other MACT that may be applicable to PVC and EDC/VCM facilities. One commenter requested that promulgation of the PVC MACT be delayed until a consolidated rule can be issued that also addresses EDC/VCM manufacturing facilities because the application of two separate rules is confusing to the regulated community. Another commenter proposed that the EPA expressly state that PVC vent streams and the centralized thermal oxidizers and ancillary equipment in which they are controlled with EDC/VCM vent streams not be subject to the requirements of the PVC MACT as long as they are controlled by the HON or other MACT standards because the commenter asserts that the EPA has made similar accommodations to address overlapping and conflicting requirements in previous MACT rules.

Other commenters requested that the EPA provide overlap provisions for facilities that are already subject to other MACT standards. The commenters stated that affected sources currently subject to other part 63 NESHAP should have the option to choose one compliance option for the entire source rather than trying to demonstrate compliance with two separate requirements for the same equipment. One commenter pointed out that the proposed rule could cause regulatory inconsistencies because, for a PVCPU utilizing a control device system already regulated under another part 63 MACT (e.g., HON), that control device would have to meet two different standards (i.e., HON MACT and PVC MACT).

One commenter proposed that the EPA should provide an option in the final rule that would allow the owner/operator to continue to comply with the existing 40 CFR part 63, subpart FFFF, the MON MACT in lieu of the PVC MACT rule if greater than 50 percent of the heat input or the organic HAP vent flow to a ''shared'' emission control device are from facilities that are subject to the MON MACT.

Response: In response to several of the comments, the final rule contains two subcategories for process vents: PVC-only process vents and PVC-combined process vents. Although this rulemaking is not consolidated with a rule for EDC/VCM production in the manner suggested by the commenter, the PVC-combined process vents subcategory addresses the concerns expressed. The process vent standards in the final rule for combined streams, e.g., from PVC and EDC/VCM, are based on and are consistent with emission testing conducted by the PVC and EDC/VCM industries in response to our CAA section 114 requests of PVC, VCM and EDC facilities. Our decision to set limits for the two process vent subcategories is further discussed in section V.D of this preamble. If a PVCPU uses a control device already subject to another Part 63 MACT rule such as the HON, then the facility may meet both sets of standards as applicable to the emission point or may choose to separate the two emission streams and route them to separate control devices, each complying with applicable requirements in the respective MACT standard. For the PVC process vent, the applicable standard may change from PVC-combined to PVC-only if the result is a process vent that qualifies as PVC-only.

We disagree with the commenters that requested the final rule should clearly state the governing rule when regulations overlap. If an emission point is subject to both the PVC NESHAP and other NESHAP because emissions from two source categories are vented to the same control device, both standards apply. Multiple standards applicable to one emission point for the same pollutant are not necessarily ''conflicting'' or ''inconsistent.'' In some standards, the EPA has allowed compliance with another overlapping standard where that other overlapping standard was determined to be at least as stringent. However for this rule, it would not be appropriate to state that sources automatically or optionally may comply with another NESHAP in lieu of the PVC NESHAP because the requirements of the other NESHAP may be less stringent than the PVC NESHAP, including its MACT floor-based standards. If the EPA were to allow sources to meet the requirements from overlapping, but potentially less stringent rules in lieu of the PVC standards, there is the possibility that PVC facilities would not meet the MACT floor based standards in this rule. Although we recognize that facilities may be subject to different NESHAP regulations, sources are responsible for ensuring that they comply with all applicable regulations. Many NESHAP regulations provide a wide variety of compliance options, and, as such, it would be a difficult task to identify in advance which is the most stringent requirement in each case. We also disagree with allowing PVC sources to comply with other regulations, such as the MON, instead of complying with the PVC MACT, if 50 percent of the heat input or vent flow to a control device is

from a source regulated by the other standard. Such an approach is unjustified because the emissions from the PVC process might not meet the PVC MACT limits and achieve the required HAP reductions (described in the previous paragraph).

C. Pollutants Regulated

Comment: One commenter contended that the CAA required that standards be set for individual HAP and that a 2004 District of Columbia Circuit Court decision established criteria that surrogates must meet. The commenter stated that the EPA does not acknowledge this test or provide an argument that total organic HAP satisfies the identified criteria: (1) Target HAP is ''invariably'' present in the surrogate pollutant, (2) methods to control or capture the surrogate pollutant ''indiscriminately'' control or capture the target HAP and (3) the controls for the surrogate are the ''only means'' by which facilities ''achieve'' reductions of the target HAP. Another commenter claimed that each pollutant should have emission limits and procedures that achieve reduction, instead of making vinyl chloride the surrogate. Another commenter added that the EPA's failure to set emissions standards for each HAP that PVC plants emit contravenes the CAA and that the EPA must demonstrate that total organic HAP (or total HAP as proposed for stripped resin and process wastewater) is a valid surrogate. One commenter suggested that limits for the individual most toxic and most prevalent HAP, as well as the total, should be developed. Another commenter added that the proposed rule only limited vinyl chloride in monitoring of leaks, process components and wastewater streams where there are other HAP and toxins present.

Other commenters agreed with the proposed rule that total organic HAP is the appropriate parameter for limiting organic HAP emissions and the only workable approach for developing limits that comply with the CAA. The commenters also explained that a total organic HAP limit provides the product flexibility needed by the industry's downstream customers. The commenters further submitted that setting standards for each individual organic HAP would not reflect an emission level that is achieved by the best performing facilities in the industry due to the variability in emissions across the best performing facilities, consistent with the Court's observations in the PVC MACT Case.

Response: Consistent with CAA section 112(d)(2) and (3), the EPA has set standards for all HAP emitted from the major source PVC source category. Contrary to the commenters' assertion, the EPA is not obligated to set a separate MACT standard for each and every individual HAP emitted by PVC major sources. Rather, as the Court recognized in *Mossville Envt'l Action Now* v. *Whitman,* 370 F.3d 1232, 1242 (D.C. Cir. 2004) (quoting *Nat'l Lime Ass'n* v. *EPA,* 233 F.3d at 637), the EPA has authority to use surrogates to regulate HAP ''if it is reasonable to do so[.]'' EPA has used surrogates, as appropriate, here and set standards for the HAP emitted from the major source PVC source category.

As discussed above, the final rule contains emission limits for vinyl chloride for process vents, stripped resin and process wastewater at PVC facilities. We have set separate limits for vinyl chloride, which is an organic HAP, because vinyl chloride is present in all emission points within the PVC source category and is already regulated at PVC facilities under the part 61 NESHAP. The final rule also contains process vent emission limits for THC, as a surrogate for organic HAP.

Further, the final rule contains process vent emission limits for CDD/CDF because unlike the vinyl chloride and other organic HAP emitted from process vents at PVC facilities, CDD/CDF are generated from combustion control of organic HAP from process vents and require separate test methods to be detected and measured. Indeed, CDD/CDF cannot be detected using the test methods available to test for other organic HAP.

Finally, the final rule contains process vent emission limits for HCl, which is an inorganic HAP that is generated from the combustion control of organic HAP from process vents. HCl is controlled in a completely different manner than organics and requires separate treatment (usually a scrubber following the thermal oxidizer). As shown below, HCl is also a surrogate for chlorine. We have limited test data indicating that chlorine may be present in emissions from process vents. The HCl standard will address such emissions, however, to the extent they exist.[1]

As noted above, we are finalizing a limit on THC as a surrogate for organic HAP emissions from process vents. THC is an appropriate surrogate, applying the 3-part ''test'' cited by the commenter. See *Sierra Club* v. *EPA,* 353 F.3d 976, 987 (D.C. Cir. 2004). First, the target HAP at issue here (*i.e.,* organic HAP) from PVC process vents are ''invariably'' present in the surrogate (THC), *i.e.,* PVC process vent emissions always contain organic HAP, and the organic HAP are comprised of hydrocarbons that will be measured as THC. Second, methods to control THC (in this case, a combination of vapor recovery, such as condensers, along with thermal oxidizers for PVC process vents) indiscriminately control the target organic HAP. Finally, the methods to control THC are the only means to achieve reductions of the target organic HAP from process vents that we have identified for this source category. We considered whether changes could be made to the VCM reaction process that is used to produce PVC and/or to the chemical inputs to the reaction process, and we concluded that such changes are not possible without fundamentally changing the PVC product being manufactured by these facilities. (See discussion below regarding variety of PVC products.) It is indisputable that the controls described above, which are necessary to meet the final emission limits, result in the removal of THC, which means organics are removed as well. Accordingly, we have met the three-part test identified by the commenter for surrogacy, as we have shown that THC is an appropriate surrogate for organic HAP from PVC process vents.

The three-part test upon which the commenter relies stems from a District of Columbia Circuit case that addressed the appropriateness of using particulate matter as a surrogate for non-mercury HAP. In a different case reviewing the PVC MACT standards issued in 2002, the District of Columbia Circuit held that the EPA has authority to use a surrogate ''if it is reasonable to do so[.]'' *Mossville Envt'l Action Now* v. *Whitman,* 370 F.3d 1242–43. We maintain that THC is a reasonable surrogate for organic HAP based on our determination that for PVC process vents there are always organic HAP in the THC, and PVC facilities will comply with the THC standard by using vapor recovery and thermal oxidization to reduce emissions of THC, which necessarily and indiscriminately will reduce emissions of all organic HAP. Thus, the removal of the THC will remove the organic HAP. *Mossville Envt'l Action Now* v. *EPA,* 370 F.3d 1232, 1242–43 (D.C. Cir. 2004).

Similarly, HCl is a reasonable surrogate for chlorine. Chlorine is present with the HCl, and the methods to control HCl would necessarily capture or control any chlorine that may be emitted by major PVC facilities. In addition, we are not aware of any other controls for the PVC industry that

[1] As discussed in the preamble to the proposed rule, all of the standards for process vents, stripped resin and process wastewater are in the form of concentration standards.

would achieve reductions in chlorine, other than the controls that would be required to meet the final HCl limit in this rule. For additional information on chlorine and HCl see the *Revised Baseline Emission Estimates for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category and the Revised Costs and Emission Reductions for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category* technical memoranda in the docket for this rule.

For stripped resin and process wastewater, the final rule includes emission limits for total non-vinyl chloride organic HAP, as opposed to THC. We were not able to establish a THC limit as a surrogate for organic HAP emissions from stripped resins and process wastewater because the data available to the agency, upon which the standards were based, were from sampling a slurry (liquid), not a gaseous stream which is necessary to collect THC data and to establish THC limits. Specifically, the data in the record were sampling data taken at the outlet of the resin strippers. The outlet of a resin stripper is the most readily available place to obtain a sample (as opposed to the resin dryer exhaust) and is appropriate given that we project that all of the HAP in the resin stripper outlet are ultimately emitted from downstream processes (*e.g.,* resin dryers). However, at the outlet of the stripper, the resin is in either a slurry (liquid) or dry (solid) form, as opposed to a gaseous stream, as is the case for process vents. There are no test methods available to determine levels of THC in a liquid or solid phase. Accordingly, we had no basis on which to set a THC limit and we, therefore, established limits for vinyl chloride and total non-vinyl chloride organic HAP from stripped resin and process wastewater.

However, the control approaches used to meet the total non-vinyl chloride organic HAP emission limits are the same as those used to reduce emissions of individual organic HAP species. Specifically, because total non-vinyl chloride organic HAP is comprised of many individual organic HAP, the reduction of total non-vinyl chloride organic HAP by means of a resin stripper (for resins) and a wastewater stripper (for wastewater) will likewise reduce the target individual non-vinyl chloride organic HAP. Further, we are aware of only one means to control organics from resins and process wastewater for this source category and that is through the use of a stripper, which indiscriminately controls all organics, and we are not aware of any other control that would indiscriminately capture all organics from resins and process wastewater. Accordingly, we believe it is reasonable to set a final limit for total non-vinyl organic HAP from resins and process wastewater.

Moreover, as some of the commenters recognized, a total non-vinyl organic HAP limit is particularly appropriate given the unique nature of this industry. We set the total non-vinyl chloride organic HAP MACT floor limit for stripped resin and process wastewater on specific information provided to the EPA from stripped resin and process wastewater sampling conducted by each company in response to our August 21, 2009, CAA section 114 survey and testing request of the PVC industry. In evaluating approaches to setting standards based on the stripped resin and process wastewater data, the EPA received uncontroverted information that a PVC facility can and often does produce many different grades [2] of PVC resin, each having different characteristics based on a different chemical formulation and production recipes and consequently different organic HAP emission profiles, and that different grades can be produced on a daily basis. PVC facilities produce a particular grade of resin according to the needs of their customers and their own business decisions, and based on information provided to the EPA by industry, we conclude that the organic HAP emitted necessarily varies depending on the particular grade of resin produced. In fact, according to one commenter, a particular facility may produce up to a 100 grades of different resins, sometimes producing different resins within a single 24-hour period. Given the large number of resins that may be produced by a particular facility, the associated diversity of chemical formulations and production recipes for these different resin grades, and the resulting differences in organic HAP emission profiles coupled with the fact that the control approaches used to meet the total non-vinyl chloride organic HAP emission limits are the same as those used to reduce emissions of individual organic HAP species and are the only means of achieving such reductions, we are finalizing total non-vinyl chloride organic HAP standards for stripped resin and process wastewater at PVC production facilities. These standards together with standards for vinyl chloride directly limit all organic HAP from PVC stripped resin and process wastewater at PVC production facilities, as reported in test/sampling data available to the EPA.

In response to comments, we created five subcategories in the final rule for stripped resins. If, as some of the commenters suggest, we were to set individual organic HAP limits, industry would likely argue that we would have to consider setting standards for a prohibitively large number of subcategories, perhaps as many as there are grades of PVC resin, to ensure that facilities producing grades of PVC resin with incompatible reaction processes and/or chemical inputs were not grouped in an inappropriate manner. In the final rule, we established the additional subcategories in response to comments where we found data in the record to support such subcategorization. Without extensive additional data from industry detailing each of the resin grades they produce, by facility, with attendant emissions information, we are not in a position to evaluate whether additional subcategories are appropriate. As such, we have no basis to establish additional subcategories on this record.

As explained previously, we are establishing THC as a surrogate for controlling all organic HAP other than vinyl chloride and CDD/CDF from process vents. However, as a compliance alternative in the final rule, facilities may comply with an equivalent total organic HAP emission limit in lieu of the THC limit for process vents. Such an alternative is appropriate for process vents for the same reasons that total non-vinyl chloride organic HAP limits are appropriate for stripped resins and process wastewater, as discussed above. (See preamble section III.C for further discussion on the emission limits we are establishing.) We also note that the approach of setting total organic HAP limits for process vents (or total non-vinyl chloride organic HAP limits for stripped resins and process wastewater) is consistent with the approach in other NESHAP, such as 40 CFR part 63, subpart FFFF (the MON), which has been successful in limiting, not only total organic HAP, but also individual organic HAP.

Finally, one commenter incorrectly states that the EPA set only vinyl chloride limits for monitoring of leaks, process components and wastewater streams. As explained above, the EPA set limits for pollutants, including but not limited to vinyl chloride, emitted from process vents, stripped resins and process wastewater. The commenter incorrectly states that the equipment leak and heat exchanger standards have only a vinyl chloride limit. In the final

[2] ''Grade'' of PVC resin is more specific than ''type'' of PVC resin. See definitions in 40 CFR part 63, subpart HHHHHHH.

rule, applicability of the equipment leak work practice standards is determined based on whether the equipment is in HAP service. In HAP service means that a process component (including equipment) either contains or contacts a liquid that is at least 5-percent HAP by weight or a gas that is at least 5 percent by volume HAP. Additionally, all equipment leak standards are based on determining VOC leaks from equipment using EPA's Method 21 and fixing leaks that are detected. VOC are present throughout the PVC process. As such, if you identify a leak of VOC, fixing that leak necessarily will eliminate the VOC emissions and any other HAP emissions. Thus, VOC is a marker that is indisputably present in all PVC streams. A HAP-specific equipment leak definition is not possible because EPA Method 21, which is the only currently approved EPA method to detect equipment leaks, detects VOC, not individual compounds.

For heat exchange systems, based on comments received, we are including in the final rule a vinyl chloride leak action level and monitoring requirements because vinyl chloride is always present along with other HAP when process material leaks into cooling water, and, therefore, detection of vinyl chloride and repair of the leak will control the leak for all HAP. However, because some facilities already have programs in place to detect total strippable VOC in cooling water, we are also providing that as an option for detecting leaks into cooling water. Here, the same principle applies in that, controlling the VOC leak will in turn control HAP that leak into the cooling water. Thus, irrespective of whether a source monitors for VOC or vinyl chloride, the result is the same: Controlling any such identified leak will, in turn control any HAP that leak into the cooling water.

Finally, with respect to the commenter that suggested that limits for the individual most toxic and most prevalent HAP should be developed, the commenter fails to recognize that EPA has authority to use surrogates to address HAP. The EPA has appropriately identified the HAP emitted from the PVC source category and set standards for those HAP, including using surrogates where appropriate.

Comment: Several commenters raised issues with the term ''HAP'' and related terms, such as ''total organic HAP'' and ''total HAP.'' Two commenters stated that, though the EPA refers to sampling and specific limits for HAP and organic HAP, there is no definition of HAP, organic HAP, or total organic HAP provided for process vents, stripped resin or other emission sources. Two commenters stated that these subsets of HAP should be restricted and defined because the PVC manufacturing process does not have the potential to emit the entire list of HAP designated by the CAA. Another commenter requested that a subset of the complete list of total organic HAP be defined specifically for suspension type process facilities. Two commenters submitted a subset of the complete list of organic HAP that they believe is appropriate to define in the rule. The commenters submitted 19 HAP that should be subjected to a stripped resin limitation through the total organic HAP approach and 11 additional HAP that were not detected, but were analyzed and reported as non-detect.

Response: The term ''hazardous air pollutant'' (HAP) is defined in 40 CFR 63.2 as ''any air pollutant listed in or pursuant to section 112(b) of the Act''. It follows directly that ''total non-vinyl chloride organic HAP'' means all organic HAP except vinyl chloride. The terms ''organic HAP'' and ''total organic HAP'' are commonly understood terms meaning HAP that are carbon based, individually or in total, respectively.

In the proposed rule, we did not limit the definition of total organic HAP for process vents to a specific set of organic HAP or total HAP for stripped resins and wastewater to a specific set of total HAP that are emitted by the PVC industry. Part of our intent through the issuance of the required process vent testing and resin sampling under our CAA section 114 authority was to obtain data on which HAP were in fact used, produced, and/or emitted from PVC production facilities. We have considered the commenters' suggestions on requiring compliance based on a subset of HAP, *i.e.,* those HAP that have the potential to be emitted from PVC facilities. Based on our analysis of the process vent testing data, resin sampling data, and responses to our August 21, 2009, CAA section 114 survey and testing request, we recognize that the industry does not emit all HAP, but rather only a subset of HAP, primarily organic HAP, as discussed above. We reviewed the commenters' lists of HAP for stripped resin and compared those lists to the sampling data submitted. We confirmed that PVC stripped resin and process wastewater has been shown to contain or may contain 30 of the HAP listed under section 112(b) of the CAA, in addition to vinyl chloride, and so we are requiring facilities to analyze, at a minimum, those 30 organic HAP and vinyl chloride, in both stripped resins and process wastewater samples. Although these 30 HAP are all the organic HAP we identified in the data available to the EPA, it is not appropriate to set individual HAP limits because the combination and quantity of each of these 30 HAP vary depending on the wide variety of resin grades produced within the PVC industry. As discussed previously, it would be impractical to set individual HAP limits specific to the potential large number of subcategories that would be necessary to account for the more than 100 different resin grades produced.

We are also requiring facilities to develop a facility-specific list of HAP for both stripped resins and process wastewater. The facility-specific list of HAP must include all HAP expected to be present in stripped resin and process wastewater samples, including any HAP not listed in table 10 of the final rule. Our analysis is documented in the memorandum, *Analysis of HAP in Stripped Resins and Wastewater for the Final PVC Rule.* Under this final rule, to meet the stripped resin and process wastewater total non-vinyl chloride organic HAP emission limits, you must test for those 30 HAP that are known to possibly be present in the PVC production process based on all the data available to the EPA, and, in addition, sources must test for HAP beyond those 30 that facilities are aware of based on the resin grades they produce. We are including those compounds to ensure that they would be included in the facility's calculation of total non-vinyl chloride organic HAP should those compounds become present in the process in detectable quantities.

For process vents, demonstrating compliance with the THC limit does not require testing based on a list of specific HAP as EPA Method 25A measures THC and not speciated HAP.

D. Subcategories

Comment: Two commenters contended that the EPA should use data from stand-alone PVC facilities to establish the process vent emission limits. Another commenter asserted that the agency recognized that it was important to set standards based on PVC-only vent gas flows and required industry to isolate and burn PVC-only vent streams at co-located facilities. The commenter added that thermal oxidizers at stand-alone EDC/VCM plants or co-located with PVC plants tend to be much larger than those at stand-alone PVC units. The commenter stated that to produce data in response to the CAA section 114 testing required for PVC facilities, large volumes of natural gas were burned to treat the small PVC-only vent streams to make up for the other

streams, such as EDC or VCM, that had been tied off as instructed by the CAA section 114 survey, resulting in a non-representative emission profile. The commenter noted that the Vinyl Institute Working Group submitted to the EPA a list of facilities (stand-alone PVC plants) that it believes is appropriate to use in setting the MACT floor for process vents.

Response: This final rule contains two subcategories for process vents: PVC-only process vents and PVC-combined process vents. In response to comments submitted by the industry and others, based on our review of those comments and a subsequent review of the testing data submitted in response to our August 21, 2009, CAA section 114 survey and testing request for the PVC industry, we determined that there are significant differences in the size and type of process vents that originate from PVCPU and process vents from PVCPU that are combined with process vents from other source categories, such as EDC/VCM or other HON sources, prior to control. The differences in the HAP concentrations in the process vent streams arise from the fundamental differences in the products, unit operations, and the manufacturing process of the source categories that are typically co-located with and/or that share a control device with a PVC affected source. Examples include EDC and VCM manufacturing processes, which are commonly co-located with a PVC production process and manufacture the primary raw materials (EDC is used to produce VCM) used in the production of PVC resin. Additionally, the average control device volumetric outlet flow rate is 2,100 percent greater for process vents from PVCPU that are combined with process vents from other source categories compared to process vents that originate only from PVCPU, a significant difference in size. Therefore, in the final rule, we have established two subcategories for process vents: PVC-only and PVC-combined. PVC-only process vents comprise process vent streams that originate solely from a PVC affected source. We agree with commenters who suggested that the testing conducted using large volumes of natural gas to treat these small PVC-only vent streams did not produce a representative emission profile. Therefore, we did not include those tests results to determine the PVC-only MACT floors for process vents. PVC-combined process vents comprise process vent streams that originate from a PVCPU and that are combined or are co-controlled with process vent streams that originate from other source categories, such as EDC or VCM production processes. Details on the determination of MACT floors and limits for process vents are documented in the technical memorandum, *Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* which is available in the docket.

Comment: Two commenters contended that PolyOne's vent gas absorbers are recovery devices and not control devices because they capture and recycle vinyl chloride back into the production process, rather than treating it as a waste. The commenters added that, because PolyOne's vent gas absorbers do not operate at elevated temperatures or combust the vinyl chloride, they do not result in the formation of additional HAP or generation of unwanted by-products, such as CDD/CDF and greenhouse gases. The commenters contended that the proposed MACT would require backup thermal oxidizers to be used continuously. The commenter added that large amounts of energy will be consumed and greenhouse gasses emitted in an effort to control a tiny amount of VOC. The commenter concluded by arguing that consideration should be given to the overall air impact of operating backup thermal oxidizers continuously.

Another commenter stated that the flow rate out of PolyOne's absorbers is two orders of magnitude less than the emissions flow rate from control device technology that includes thermal oxidizers and scrubbers combined. The commenters stated that the proposed MACT should take emissions rates into consideration and not solely rely on emissions concentrations when establishing limits for recovery devices. One commenter added that for sites equipped with vent gas absorber recovery technology, thermal oxidizers are necessary only in the event of an outage or malfunction with the operation of the vent gas absorbers to ensure that any vinyl chloride, which is not recycled back to the process, is destroyed.

Response: The rule contains emission limits for process vents that apply at the point where the gaseous stream is released to the atmosphere. While we recognize that a vent gas absorber at the commenter's facilities recover vinyl chloride, those absorbers also have stacks that emit to the atmosphere and would therefore be subject to the process vent limit. The rule does not require that affected sources use a specific control or recovery device to meet the process vent limits, and the final emission standards are not based on whether a vent gas absorber is classified as a recovery device or control device. An affected source may use any control device to reduce the process vent emissions to meet the required limits. We considered setting alternative formats for the process vent emission limits. However, we did not have sufficient information provided from industry on process vent stream flow rates and concentrations to develop or evaluate other formats, such as mass emission rates.

Comment: Many commenters contended that the EPA should further subcategorize resins. One commenter stated that the EPA should recognize that resin recipes, production processes and equipment required for end product utility, govern the emissions and the ability to strip each type of resin. The commenter stated that the data provided by the Vinyl Institute demonstrate the differences between production processes and PVC morphology and particle size of the PVC products manufactured. The commenter added that these differences equate to differences in ability to steam strip the resin of vinyl chloride, among other things.

Several commenters stated that copolymer resins are a completely different chemistry from homopolymer resins and should be regulated through their own subcategory. The commenters requested that the EPA subcategorize stripped resin by differences in chemistry (co-monomers), raw material inputs, process equipment, resin types and grades or other factors, provided such subcategorization is reasonable.

One commenter objected to the agency's proposal to subcategorize resins as ''bulk'' and ''dispersion,'' with all other resins, including copolymers, suspension blending and suspension resins relegated to an ''other resin'' subcategory. The commenter stated that the EPA's proposed subcategorization scheme is textually inconsistent and will likely cause regulatory confusion within the industry. The commenter stated the agency's proposed subcategories ignore critical differences in processing equipment, material inputs and resin morphology that have a critical and differentiating impact on the HAP profile of the various resins. The commenter contended that, at a minimum, the EPA should organize stripped resin limits along the following subcategories for homopolymers: Suspension, dispersion, bulk and blending; and for copolymers: Suspension, dispersion, blending and solution. The commenter added that by

definition, ''copolymers'' were considered distinct enough from polyvinyl chloride polymers that the EPA used the conjunctive ''and copolymers'' to describe the source category being addressed here.

One commenter added that the EPA should subcategorize copolymers by the resin type because they are capable of being manufactured in different processes (suspension, dispersion and solution) that present completely different HAP emission profiles. The commenter stated that the general class of copolymers requires differentiation from the homopolymer category. The commenter added that within this copolymer class there are different resin types (suspension, dispersion, blending and solution) that require subcategorization similar to homopolymers. The commenter continued that for each resin type, however, the choice of co-monomer creates different HAP profiles affecting the HAP analyzed; co-monomers are chosen, based on the end product characteristics specified by the customer. The commenter added that the vinylidene chloride copolymer is a highly crystalline polymer, making the removal or stripping of vinyl chloride from the resin more difficult than typical PVC polymers. The commenter stated that, to require its facility to meet this proposed standard for all other resins, is technically infeasible, based on the unique chemistry used.

Several commenters contended that dispersion resins should be regulated separately from suspension blending resins. The commenters stated that dispersion resins and suspension blending resins should be included in the MACT as their own categories due to the very different nature of both the manufacturing technologies used and the resins produced. The commenter added that suspension blending resins are a type of specialty resin used in flooring, automotive interiors and synthetic leather products. The commenters stated that the proposed MACT does not specifically address suspension blending resins, leaving this class of resin manufacturing unclear. Further, for the same reasons discussed for dispersion resins, the commenters contended that suspension blending resins require a separate subcategory under the proposed MACT. The commenters asserted that suspension blending resins have very different characteristics than generic suspension resins, including smooth surfaces and different particle sizes of distribution, all of which present different challenges when stripping vinyl chloride from a different resin.

One commenter added that the previous 30-day data submitted pursuant to the EPA's CAA section 114 request for PVC facilities were not representative of blending PVC resin alone. The commenter stated that the data were for suspension, including suspension blending PVC resin. The commenter asserted that samples for regular suspension resin were composited with blending PVC resin samples to get one daily suspension analysis rather than analyzing the samples separately. The commenter stated that both categories react to steam stripping quite differently and truly are different products. One commenter submitted data to support their assertion that suspension blending PVC resin, because of its unique morphology, could not possibly be stripped to the levels proposed for suspension general purpose resin. Two commenters argued that further subcategories of suspension resins should either be established or considered. One commenter requested that the EPA subcategorize the emission limits for the ''other resin'' category into the following subcategories: Low molecular weight (LMW), high molecular weight (HMW) and general purpose.

Response: In the proposed rule, limits were developed for new and existing sources for three subcategories of PVC resin: (1) Bulk resin, (2) dispersion resin and (3) all other resins. Based on our review of the public comments and our concurrent review and analysis of the additional data on the vinyl chloride concentrations in stripped resins submitted by the PVC industry, we determined that the data clearly show that there are significant differences in the concentrations of vinyl chloride and other HAP that remain in the various types of resins following stripping. The differences in the concentrations of vinyl chloride and other HAP that remain in the various resin types are a direct consequence of several factors related to the overall process to produce each resin type. These factors include: The different raw materials necessary to produce each resin type, the unique process chemistry required to produce each resin type, the process conditions required to produce each resin type and differences in the morphology of the resin particles following polymerization. The current technology that is used to remove residual vinyl chloride and HAP from polymerized resin is steam stripping. The conditions under which steam stripping is performed are unique to the resin type being produced and the ability to strip, or remove the maximum amount of residual vinyl chloride and HAP from the resin types, is constrained by the resin morphology, product quality and customer end-use requirements. The different resin types all differ in morphology, particle size and porosity, which all affect the ability to remove residual, or unreacted VCM and other HAP from the resin matrix. For a steam stripping unit that is operating as designed to remove the maximum amount of residual vinyl chloride and HAP from polymerized resin, simply adding more steam to that unit may result in some additional removal of vinyl chloride and other HAP, but the additional heat from the steam will degrade the resin and thus negatively affect the resin quality such that it will not meet customer or performance specifications. Therefore, for the final rule, we are responding to the comments and information submitted to the EPA by dividing the limits for stripped resins into two general groupings: (1) Homopolymers and (2) copolymers. Homopolymer resins are further divided into four subcategories: (1) Suspension resin, (2) dispersion resin, (3) suspension blending resin and (4) bulk resin. Some commenters suggested further subcategorizing copolymer resins; however, the data submitted by industry to the EPA did not include sufficient specificity that would allow developing additional subcategories of copolymer resin types. Therefore, copolymer resins are not further subcategorized in the final rule. Other commenters suggested additional subcategories based on molecular weight, grade and other physical properties. However, we did not develop additional subcategories for various resin grades (e.g., LMW, HMW or general purpose) because this could have potentially resulted in hundreds or thousands of resin subcategories, each with its own MACT analysis, making such an approach impractical to establish and administer.

E. MACT Floor Calculation

Following proposal, industry submitted additional data and information on several emission sources: (1) Process vents, (2) stripped resins, (3) process wastewater and (4) gasholders. For process vents, stripped resins and process wastewater, we received additional data for organic compounds and HCl. Metal HAP are not present in the PVC production process. The post-proposal data submittals are available in the docket. The data were used to revise the MACT floors and impacts.

1. Additional Data Submitted Process Vents

Industry provided data clarifying which PVC facilities are co-located with EDC and VCM production or other source categories and which facilities are stand-alone PVC producers. Industry also provided clarification of the conditions (e.g., percentage contribution of the PVCPU to the total process vent stream) during stack testing conducted in response to our August 21, 2009, CAA section 114 survey and testing request sent to PVC companies. Industry identified which facilities typically co-control non-PVC streams. The EPA also received results of emissions tests conducted for EDC and VCM production facilities, some of which are co-located and co-controlled with PVC production facilities, as required by our March 16, 2011, CAA section 114 survey and testing request for VCM/EDC production companies. The CAA section 114 request required that emission data be collected by testing the VCM/EDC process vents for vinyl chloride, dioxin/furan and THC emissions. The results of emissions tests from the co-located and co-controlled facilities included data for PVC-combined process vents (e.g., any VCM/EDC process vent that also contains a PVC process stream) that were included in the MACT floor analysis for PVC-combined process vents.

Stripped Resin

Industry provided a database containing 4 years of daily average vinyl chloride concentrations in stripped resins, determined by using EPA Method 107 for all but two PVC production facilities. The provided database contained information for four specific resin types: (1) Suspension, (2) dispersion, (3) suspension blending and (4) vinyl acetate copolymer (VACO).

Industry also submitted an updated 30-day resin sampling concentration database for total HAP, based on using various EPA SW–846 Methods and providing additional specificity on resin types and corrections to previously submitted data; VACO and suspension blending data were separated from dispersion and suspension data, respectively. Another commenter submitted new vinyl chloride and total organic HAP data for suspension blending resin as a result of additional sampling and testing performed by the company independent of the EPA's CAA section 114 request for the PVC production industry.

Additionally, results that were reported as composites of two or more resin types were identified by resin type, and previous results from the OxyVinyls suspension plants that were indicated as a reporting limit (RL) were changed to non-detect. Vinylidene/vinyl chloride copolymer concentration data from Dow Chemical were also added to the database.

Wastewater

Commenters submitted approximately 1 year of vinyl chloride concentration data at the outlet of wastewater strippers for nine PVC production facilities. All concentrations were obtained using EPA Method 107. The data were provided on a varying basis across facilities (e.g., daily, weekly, monthly).

Gasholders

In response to industry comments, we requested and received annual emissions estimates for small and large sized gasholders. In addition to submitting comments regarding suggested control and work practice options for gasholders, industry also provided estimates of the capital cost and emission reductions for work practices that could be used to reduce emissions from gasholders, i.e., using floating objects.

Equipment Leaks

At proposal, we ranked the LDAR programs used at each affected PVC source from most stringent to least stringent, based on the leak definitions, monitoring frequencies, control requirements and repair requirements reported in the responses to our August 21, 2009, CAA section 114 survey and testing request. We then identified the LDAR programs employed by the best-performing five sources. The results of this analysis showed that three out of the best-performing five sources comply with 40 CFR part 63, subpart UU level 2 controls. Therefore, we proposed that existing and new affected sources comply with the LDAR program requirements of the National Emission Standards for Equipment Leaks-Control Level 2 Standards, subpart UU of 40 CFR part 63.

During the comment period, one of the facilities that had responded that they complied with subpart UU of 40 CFR part 63 (Shintech Freeport), stated that the survey response was in error, and the facility is actually complying with the equipment leak requirements of 40 CFR part 61, subpart V. This change results in a revision to the MACT floor for existing major sources, which is discussed in section V.E.2 of this preamble.

2. MACT Floor Revisions

In the final rule, we revised the MACT floor-based emission limits for process vents, stripped resins and wastewater, as discussed in the technical memorandum, *Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* which is available in the docket.

Process Vents

In the final rule we calculated the MACT floors for the two process vent subcategories, PVC-only and PVC-combined, accounting for variability using the UPL calculation. At proposal, a 99-percent UPL calculation was used where the m value (representing the number of test runs used in the compliance average) was 30 for the THC compliance limit option. For the final rule, we changed the m value to 3 because 3 THC test runs using EPA Method 25A will be performed over the 5-year period with which compliance will be averaged. Therefore, an m value of 3 for the THC UPL calculation is appropriate.

In the final rule, we revised the procedure for identifying a representative method detection level (RDL) for vinyl chloride, HCl, CDD/CDF, THC and total organic HAP for PVC-only and PVC-combined process vents. At proposal, we determined the RDL by identifying the highest test-specific MDL reported by the top 5 best-performing facilities for each pollutant in each subcategory that was also less than the calculated average emission concentration of those top 5 best-performing facilities.

For the final rule, the RDL for vinyl chloride and total organic HAP was determined by identifying the available reported pollutant-specific MDL values for the top 5 best-performing units regardless of any subcategory. However, the data set of reported pollutant-specific MDL values included MDL values only from reference methods for new source performance standards (NSPS) and NESHAP rulemakings since they are the established compliance methods for air pollutants and have a more robust quality assurance procedure. For our August 21, 2009, CAA section 114 testing request, other test methods besides reference methods for NSPS/NESHAP (i.e., EPA SW–846 Method 0031) were used to account for all the possible HAP that could potentially be emitted from process vents. Emission data collected as a result of performance testing with non-reference methods for NSPS/NESHAP

were used in the MACT floor analyses since the resulting values could be measured using reference methods. From that combined pool of MDL data, we calculated the arithmetic mean value. We then called the resulting mean of the MDL values the RDL.

For HCl and CDD/CDF we used RDL values based on data collected for several hundred EPA Method 23 and EPA Method 26A emissions tests from various industries, a much larger data set than the one compiled only from PVCPU testing. The RDL values calculated from the larger data sets are more representative of the inherent measurement variability both within and between testing companies. The RDL values were determined by the same procedure described above for vinyl chloride and total organic HAP. All of the available reported pollutant-specific MDL values for the best-performing facilities regardless of any subcategory were identified and an arithmetic mean was calculated from the resulting data set and determined to be the RDL.

For THC, we determined that the RDL for EPA Method 25A for a 10-ppm propane span would be 0.5 ppm propane. We arrived at this RDL by surveying the typical flame ionization analyzers in use by the testing community and evaluating the required method criteria in EPA Method 25A. The survey of the instruments yielded several vender stated instrument detection limits from 0.01 to 0.5 ppm as carbon with one independent third party degermation of 0.8 ppm as carbon. In addition, several instruments' minimum reportable resolution is 0.1 ppm as propane. The method criteria allows for a 3-percent zero and span drift during performance runs and an initial criteria of 5 percent of the calibration gas. The sum allowable calibration error and drift would be approximately 0.475 ppm as propane (using a 3.5-ppm propane span gas), which would be higher than the instrumental detection limits.

For vinyl chloride, HCl, CDD/CDF, THC and total organic HAP, the MACT floor emission limit was compared to 3 times the RDL. As in the proposed rule, if 3 times the RDL was greater than the calculated MACT floor emission limit, we concluded that the MACT floor emission limit does not account entirely for measurement variability and, therefore, we used the value equal to 3 times the RDL in place of the calculated MACT floor emission limit. The variability analysis conducted for the final rule is contained in the memorandum titled *Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* and is available in the docket.

Stripped Resin

Vinyl chloride and total HAP limits for stripped resins were calculated at proposal using a 99-percent UPL calculation and 30 days of vinyl chloride and other HAP data from all facilities that conducted resin sampling and analysis as part of our August 21, 2009, CAA section 114 survey and testing request for the PVC industry. In developing the proposal, we requested sources subject to the CAA section 114 request provide information on the residual compounds in the resin leaving the stripper on a mass-basis. After the mass-based sampling results were submitted to us, the Vinyl Institute, on behalf of the PVC industry, provided a database of the concentration values that were used by the facilities to convert their concentrations to mass-based values. For the proposed rule, we calculated limits for dispersion resin, based on the reported mass-based values for each HAP present in the resin, which we then converted to concentrations, based on dispersion resin production. The proposed limits for all other resin types (i.e., suspension resin) were calculated, based on the originally measured vinyl chloride concentration values that were reported by each suspension resin facility and compiled into the concentration database that was supplied to us by the Vinyl Institute. The limit for bulk resin was calculated using the vinyl chloride and other HAP concentrations provided by the single bulk resin manufacturing facility in their response to the CAA section 114 request for the PVC industry. Variability was not assessed in the calculation of the limit for bulk resin because the data for vinyl chloride and total organic HAP consisted of one unique value each.

We received numerous comments on our approach at proposal for calculating stripped resin limits, which included comments on the subcategories, the use of mass-based values for determining the limits for dispersion resin, the use of vinyl chloride concentration data collected via EPA Method 107 in calculating a total organic HAP limit where a different test method was used for other non-vinyl organic chloride HAP, our approach for accounting for variability in the stripped resin limits and the m value in the UPL calculation for both vinyl chloride and total organic HAP.

During the public comment period, the Vinyl Institute provided us with an updated database, as described above, of the vinyl chloride and other HAP concentration values that were measured as the resin was exiting the stripper(s) and that were not then converted by the facilities to mass values. We also received supplemental resin sampling data from one PVC facility (PolyOne) and further information regarding their previous data submittals. In consideration of the comments received and our subsequent review and analysis of the submitted data, we made several changes to the limits for stripped resins. No additional data were provided from the single bulk resin manufacturer, so the final limits for bulk resin were recalculated only to remove vinyl chloride from the calculation for the total non-vinyl chloride organic HAP limit. Variability was not assessed in the calculation of the limit for bulk resin because the data for vinyl chloride and total HAP consisted of one unique value each. For the final rule, we used the original concentration values, as measured during the required emission testing of our August 21, 2009, CAA section 114 survey and testing request, and analyzed it as the basis for setting the MACT floors for suspension, dispersion, suspension blending and copolymer resin. This provided a consistent basis to compare concentrations of vinyl chloride and other HAP and calculate limits on a consistent basis. At proposal, the vinyl chloride limits for all subcategories except for bulk resin were calculated using data obtained from EPA SW–846 Method 8260B and a representative detection limit analysis was performed, based on those data. For the final rule, vinyl chloride limits were determined by using a percentile calculated from 4 years of vinyl chloride concentration data from the top five sources that were obtained by sampling using EPA Method 107 and provided by the Vinyl Institute. The change in methodology was appropriate because the 4-year data set was sufficiently large (between 523 and 5,165 data points total for the calculation of each limit, depending on the resin subcategory, and not including bulk resin) that it is not necessary to estimate variability by use of the UPL equation. Rather, by using a percentile, variability is accounted for directly from the vinyl chloride data set comprised of the lowest emitting sources. Percentiles represent the specified slice of the sample data and unlike confidence and prediction intervals, they are distribution-free. Furthermore, the overwhelming majority of vinyl chloride concentration values reported were above the

detection limit for EPA Method 107 and therefore, a representative detection limit analysis did not need to be performed.

In the proposed rule, the total HAP limits for the stripped resin subcategories included the contribution from vinyl chloride. In the final rule, vinyl chloride concentrations were removed from the total HAP limit calculations, resulting in limits for total non-vinyl chloride organic HAP for all subcategories of stripped resin. This was appropriate because the data used to develop the MACT floors and limits for vinyl chloride in stripped resin were based on EPA Method 107. While vinyl chloride can be analyzed using EPA SW–846 Method 8260B, a total HAP limit that includes vinyl chloride analyzed using that method would be inconsistent with our separate limit for vinyl chloride alone, which is based on data obtained using EPA Method 107. Since we have developed a separate vinyl chloride limit, it is not necessary to include vinyl chloride as part of the total HAP limit for stripped resins. Because different test methods were used to develop the emission standards, we are requiring compliance testing and sampling based on the different test methods to demonstrate compliance with those standards. The differences in the test methods (e.g., the way that samples are collected and analyzed) caused the vinyl chloride emissions to differ by orders of magnitude when the same sample was tested using the two different methods. At proposal, variability was assessed for total HAP using a 99-percent UPL calculation with the m value set at 30 to represent 30 single daily total HAP values. For the final rule, variability was assessed for total non-vinyl chloride organic HAP using the 99-percent UPL calculation; however, because we are requiring compliance with the total non-vinyl chloride organic HAP limits for all subcategories to be based on a single 24-hour period taken once per month, we calculated the UPL for total non-vinyl chloride organic HAP using an m value of 1.

For the final rule, we revised the procedure for identifying an RDL for total non-vinyl chloride organic HAP. At proposal, we determined the RDL by identifying the highest test-specific MDL reported by the top 5 best-performing facilities for total HAP in each subcategory that was also less than the calculated average concentration of those top 5 best-performing facilities. For the final rule, the RDL for total non-vinyl chloride organic HAP was determined by identifying all of the available MDL values for the top 5 best-performing facilities regardless of any subcategory. From that combined pool of MDL data, we calculated the arithmetic mean value. We then called the resulting mean of the MDL values the RDL. As in the proposed rule, if 3 times the RDL was greater than the calculated limit, we concluded that the MACT floor limit does not account entirely for measurement variability and, therefore, we used the value equal to 3 times the RDL in place of the calculated MACT floor limit.

For the final rule, we excluded: (1) Copolymer resin data from Dow Chemical's Midland, Michigan, facility due to the lack of a sampling and analysis report documenting the analysis results, (2) data from Georgia Gulf's Aberdeen, Mississippi, and Plaquemine, Louisiana, facilities because the data reported from analysis using a modification to EPA SW–846 Method 8260B could not be compared to data reported from other PVC facilities that analyzed resin concentrations using an unmodified EPA SW–846 Method 8260B and (3) selected reported HAP concentrations from PolyOne's Henry, Illinois, facility due to unexpectedly high reported detection limits that we determined were inaccurate when compared to the reported detection limits from other facilities.

Wastewater

For the proposed rule, the wastewater vinyl chloride concentration limits were calculated using a 99-percent UPL calculation with an m value of 1 to represent monthly compliance, based on a single sampling event. The limits were calculated, based on data provided by facilities in their CAA section 114 survey responses. These data represented a mix of sampling data, engineering estimates and mass balance calculations. Post proposal, industry submitted 1 year's worth of vinyl chloride sampling data results from wastewater strippers at several facilities. For the final rule, we recalculated the monthly vinyl chloride concentration limits using a 99-percent UPL calculation, as described above, but the limits were calculated based on the actual vinyl chloride sampling data provided by the industry.

We used the UPL to assess variability in the calculation of the final limits for process wastewater. Despite the substantially larger vinyl chloride concentration data set provided by the industry during the public comment period, the percentile approach was not used as it was for the stripped resin vinyl chloride limits because the final data set was not sufficiently large (60 data points total, or 12 monthly vinyl chloride values for each of the top five performing facilities) and we had to make assumptions about the distribution of the data.

In the proposed rule, total HAP emission limits were based on a beyond-the-floor option of complying with the HON flow rate and concentration values. For the final rule, we calculated a total non-vinyl chloride organic HAP emission level at the MACT floor, based on non-vinyl chloride organic HAP data reported by PVC facilities and using the same calculation methodology used to determine the MACT floor vinyl chloride emission limit with compliance demonstrated on a monthly basis. In the proposed rule, the total HAP limit for wastewater included the contribution from vinyl chloride. In the final rule vinyl chloride concentrations were removed from the total non-vinyl chloride organic HAP limit calculation, resulting in total non-vinyl chloride organic HAP limits for process wastewater. This approach was appropriate since we are requiring different test methods to demonstrate compliance with the vinyl chloride and the total non-vinyl chloride organic HAP limits.

The determination of the RDL value for vinyl chloride was revised for the final rule as previously described for process vents. Industry did not provide non-detect data for total non-vinyl chloride organic HAP; therefore, non-detect data were not incorporated in the total non-vinyl chloride organic HAP limit calculation.

Equipment Leaks

Based on changes to information reported by Shintech Freeport, as discussed above, we revised the MACT floor analysis for equipment leaks at existing sources. The results of this analysis showed that two out of the best-performing five sources comply with 40 CFR part 63, subpart UU level 2 requirements, and the remaining three complied with 40 CFR part 61, subpart V. For the final rule, the MACT floor level of control for equipment leaks at existing sources, taking the median of the best-controlled five sources, is compliance with subpart V.

Comment: One commenter stated that in the proposed PVC MACT, new source emission limits for process vents, the resin stripper and wastewater were based on the best-performing emission source. However, the commenter stated that the data sets used to establish the new source MACT floor were not adequate or representative of the best performance from the source.

The commenter added that the new source process vent MACT floor was established by selecting the best performance of each individual HAP from all facilities. The commenter asserted that, as a result, no current facility can meet the control level represented by the proposed new source MACT. The commenter requested that the EPA re-evaluate the feasibility of the new source MACT floor analysis for on-going, continuous compliance.

Response: At proposal and in this final rule, we used the data available to us to conduct the new source MACT floor analyses. A reasonable interpretation of CAA section 112(d)(3) is that MACT floors may be established on a HAP-by-HAP basis, so that there can be different pools of best performers for each HAP. Indeed, as illustrated below, the total facility approach is not only not compelled by the statutory language, but can lead to results so arbitrary that the approach may simply not be legally permissible.

CAA section 112(d)(3) is not explicit as to whether the MACT floor is to be based on the performance of an entire source or on the performance achieved in controlling particular HAP. Congress specified in CAA section 112(d)(3) the minimum level of emission reduction that could satisfy the requirement to adopt MACT. For new sources, this floor level is to be ''the emission control that is achieved in practice by the best controlled similar source.'' For existing sources, the floor level is to be ''the average emission limitation achieved by the best performing 12 percent of the existing sources'' for categories and subcategories with 30 or more sources, or ''the average emission limitation achieved by the best performing 5 sources'' for categories and subcategories with fewer than 30 sources. The language of the CAA does not address whether floor levels can be established HAP-by-HAP or by any other means. The reference to ''sources'' does not lead to the assumption the commenters make that the best-performing sources can only be the best performing sources for the entire suite of regulated HAP. Instead, the language can be reasonably interpreted as referring to the source as a whole or to performance as to a particular HAP. Similarly, the reference in the new source MACT floor provision to ''emission control achieved by the best controlled similar source'' can mean emission control as to a particular HAP or emission control achieved by a source as a whole.

The EPA's long-standing interpretation of the CAA is that new source (as well as existing source) MACT floors are to be established on a pollutant-by-pollutant basis.[3] One reason for this interpretation is that a contrary approach could yield least common denominator floors—that is, floors reflecting mediocre or no control rather than what the best performers have achieved. See 76 FR at 15622, March 21, 2011; 61 FR at 173687, April 19, 1996; 62 FR at 48363–64, September 15, 1997 (same approach adopted under the very similar language of CAA section 129(a)(2)). Such an approach would allow a source that is not the best-performer for certain pollutants nonetheless to be considered the best performer overall, including for those same pollutants for which it is demonstrably not the best performer. It is even conceivable that the worst performing source for a pollutant could be considered the best performer for all pollutants, a result Congress could not have intended.

For example, if the best-performing five sources for vinyl chloride were also the worst performing sources for HCl and the best performers for HCl were the worst performers for vinyl chloride, under a total facility approach the floor would end up not reflecting best performance for HCl and vinyl chloride. In such a situation, the EPA would have to make a value judgment as to which pollutant reductions were most critical to decide which sources are best-controlled. See Petitioners Brief in *Medical Waste Institute et al.* v. *EPA,* No. 09–1297 (DC Cir.) pointing out, in this context, that ''the best performers for some pollutants are the worst performers for others'' (p. 34) and ''[s]ome of the best performers for certain pollutants are among the worst performers for others.'' Such value judgments are antithetical to the direction of the statute at the MACT floor-setting stage.

The central purpose of the amended CAA section 112(d) provisions was to apply strict technology-based emission controls on HAP. See, *e.g.,* H. Rep. No. 952, 101st Cong. 2d sess. 338. An interpretation that the floor level of control must be limited by the performance of devices that only control some of these pollutants effectively guts the standards by including worse performers in the averaging process, whereas the EPA's interpretation promotes the evident Congressional objective of having the floor reflect the average performance of best-performing sources. Because Congress has not spoken to the precise question at issue, and the agency's interpretation effectuates statutory goals and policies in a reasonable manner, its interpretation must be upheld. See *Chevron* v. *NRDC,* 467 U.S. 837 (1984).

The EPA notes, however, that if optimized performance for different HAP is not technologically possible due to mutually inconsistent control technologies (for example, if HCl performance decreased as organics reduction is optimized), then this would have to be taken into account by the EPA in establishing a floor (or floors). The Senate Report indicates that if certain types of otherwise needed controls are mutually exclusive, the EPA is to optimize the part of the standard providing the most environmental protection. S. Rep. No. 228, 101st Cong. 1st sess. 168 (although, as noted, the bill accompanying this Report contained no floor provisions). It should be emphasized, however, that the District of Columbia Circuit has stated that ''the fact that no plant has been shown to be able to meet all of the limitations does not demonstrate that all the limitations are not achievable.'' *Chemical Manufacturers Association* v. *EPA,* 885 F. 2d at 264 (upholding technology-based standards based on best performance for each pollutant by different plants, where at least one plant met each of the limitations but no single plant met all of them).

Such an approach would not meet the requirements of the CAA. For these reasons, the EPA's approach is the appropriate methodology for developing new source MACT floors and no further reevaluation is necessary.

Comment: Several commenters argued that the EPA calculated the MACT floor for vinyl chloride in stripped resin using data based on one analytical method (EPA Method 8260B) that typically underreports vinyl chloride and requires compliance with a different test method (EPA Method 107) developed specifically for vinyl chloride.

Response: We agree with the commenters that there was a tension in the proposed rule between the data used to establish the limits and the test methods required for compliance. We specifically solicited comment on this issue in the proposed rule. After consideration of information received after the proposed rule, including the potential benefits and drawbacks of both EPA SW–846 Method 8260B and EPA Method 107 in terms of vinyl chloride analysis, we conclude that EPA Method 107 is more appropriate for developing MACT floors and for determining

[3] We have done precisely that in this rule by setting emission standards for vinyl chloride, THC (or total organic HAP), total non-vinyl chlorideorganic HAP, CDD/CDF and HCl. See preamble section V.C.

compliance with such standards for vinyl chloride in stripped resins.

EPA Method 107 was specifically developed for use in the PVC industry and is the standard method for determining vinyl chloride concentrations in not only stripped resin samples, but also wastewater samples. The method provides for better extraction of the vinyl chloride and, therefore, produces more reliable and accurate, albeit nominally higher, concentration results. EPA SW–846 Method 8260B also allows for the analysis of vinyl chloride, but the method was not specifically developed for measuring vinyl chloride in PVC resin samples and so has lower reliability and accuracy compared to EPA Method 107 in this context.

Based on our analysis of data collected on vinyl chloride concentrations in stripped resin samples analyzed using both EPA Method 107 and EPA SW–846 Method 8260B, concentration values obtained using EPA Method 107 are consistently higher than the concentration values obtained on the same resin samples using EPA SW–846 Method 8260B. As such, compliance with a vinyl chloride limit based on data obtained using EPA SW–846 Method 8260B could not necessarily be determined based on compliance data obtained using EPA Method 107, making the Method 107 data inappropriate as a required basis for determining compliance with the limit based on data obtained from EPA SW–846 Method 8260B.

In the final rule, we calculated the MACT floor-based limits for vinyl chloride in stripped resins based on sampling data collected using EPA Method 107. We also require demonstration of compliance with the stripped resin vinyl chloride limits using EPA Method 107. In the final rule, we have also revised the stripped resin and wastewater limits for total organic HAP to separate vinyl chloride from those limits, resulting in total non-vinyl chloride organic HAP limits. As discussed above, EPA Method 107 is the preferred method for determining vinyl chloride concentrations in PVC stripped resin and wastewater. The EPA believes it would be inappropriate and inaccurate to determine and require compliance with total HAP standards by combining results from the two different methods because the EPA Method 107 data for vinyl chloride would be artificially overweighted compared to the data for non-vinyl chloride organic HAP based on analysis using EPA SW–846 methods, including Method 8260B, based on the significant differences in sampling results when using the methods on the same samples.

Comment: Several commenters stated that the data used to set the MACT floor are not based on normal operating conditions. One commenter stated that testing pursuant to the CAA section 114 request was conducted at the PVC production units in late 2009 and early 2010. The commenter contended that, during this period, the industry was operating by as much as 34 percent below its maximum production rates over the prior 3 years. One commenter contended that the test conditions were not representative of normal maximum operating conditions for a stand-alone PVC producer under which these values were determined and the EPA incorporated test results from much larger thermal oxidizers operated well under their maximum design operating conditions. To enable compliance with a reasonably proposed standard, the commenter stated that the EPA should revise the final rule to allow for new sources to come into compliance 3 years after the final rule is promulgated.

One commenter contended that the proposed limits for vinyl chloride, total organic HAP and HCl need to be factored-up to allow facilities to operate at maximum production rates. The commenter added that it is necessary to factor up proposed limits because the EPA's compressed schedule for gathering data did not allow facilities to test at maximum or near maximum operating rates. The commenter stated the rule, as proposed, requires facilities to perform compliance tests under hypothetical or actual worst case conditions (i.e., maximum operating rates), which is not the same conditions used to generate the data that set the standard for proposed vents. The commenter proposed, as an alternative, that industry should be allowed to test under the same conditions that were present during the stack tests conducted to comply with the CAA section 114 request.

Commenters indicated that tests done at the OxyVinyls Deer Park and Pasadena facilities and Formosa Plastics' Baton Rouge facility were conducted under abnormal operating scenarios that are not indicative of their normal operation. The commenters provided information on how the operating conditions during the test differed than at normal conditions. The commenters contended that the MACT floors should be calculated without these facilities. The commenter contended that data from that period are inappropriate for setting the MACT floor for maximum representative operating conditions. One commenter stated that during the data request for the MACT floor study, the EPA asked for data (stack testing and 30-day monitoring) related to ''normal operations'' in order to set up the MACT floor. However, the commenter asserted that the proposed rule set up limits for compliance (standards and operating limits) that are to be based on ''maximum operations'' from the subject facilities. The commenter contended that since the MACT floor data are different from what is expected from facilities for compliance with the standard, the EPA should either re-analyze the MACT floor data to revise the proposed regulatory requirements or ask the facilities for additional, and more specific, relevant data regarding maximum operating conditions. Other commenters contended that the EPA should have accounted for the testing variance that occurred by sampling and testing during a period of lower throughput for the industry. The commenters requested that the EPA adjust for lower production levels in the final rule.

Response: We agree with commenters that the OxyVinyls Deer Park and Formosa Baton Rouge facilities have PVC-combined process vents and should not be included in the PVC-only MACT floor calculation. OxyVinyls provided additional stack test information for the Deer Park facility in response to our CAA section 114 request for VCM/EDC facilities, and the OxyVinyls Deer Park facility has been included in the PVC-combined MACT floor calculation. Further discussion regarding the OxyVinyls Deer Park facility is found in response to comments below and responses regarding area sources. The Formosa Baton Rouge facility has PVC-combined process vents, not PVC-only process vents. However, they submitted test results in response to our August 21, 2009, CAA section 114 survey and testing request that were collected while the control device at the facility was controlling vent streams from the PVC process only. Therefore, the test results are not representative of a PVC-only facility due to an abnormally large amount of natural gas combusted during the time of testing to maintain operation of the thermal oxidizer. Furthermore, that facility was not included in our CAA section 114 request for VCM/EDC facilities. Therefore, we have excluded the Baton Rouge facility from any process vent MACT floor calculations. We disagree with the commenters that the OxyVinyls Pasadena facility be removed from the PVC-combined process vent MACT floor calculation due to the facility experiencing a

malfunction during process vent testing. According to the source, the specific nature of the malfunction at the OxyVinyls Pasadena facility allowed a percentage of the process vent stream to bypass the control device and enter the vent stack. As a result, both controlled and uncontrolled emissions were measured during process vent testing; however, the facility's measured concentrations were still low enough to be included in the top 5 best-performing facilities for PVC-only process vents for vinyl chloride, CDD/CDF, THC and total organic HAP. Had the malfunction not occurred, pollutant concentrations would have been even less than those determined during the time of testing and the facility would have still been included in the top 5 best-performing facilities. Therefore, we are including the OxyVinyls Pasadena facility in the MACT floor calculation for process vents.

We agree with commenters that the data submitted to the EPA in response to our August 21, 2009, CAA section 114 survey and testing request were collected under operating conditions of less than maximum capacity. Although commenters contended that the MACT floors should be adjusted for lower production levels in the final rules, commenters did not provide any empirical data or methodology to support modifying the limits. As such, we have no basis on which to consider revising the standards in response to this comment. We also agree with commenters that the testing schedule for our CAA section 114 request was compressed; however, commenters were not restricted from conducting additional testing and providing additional data to the EPA representing maximum operating conditions, yet, no such data were submitted. Accordingly, the EPA will use the data submitted by industry. Indeed, industry submitted 4 years of vinyl chloride resin data after the CAA section 114 testing request was completed and during the comment period.

We do not agree that the final rule should allow for new sources to come into compliance 3 years after the final rule is promulgated. The compliance date requirements for new and reconstructed sources are specified in the 40 CFR part 63 General Provisions at § 63.6(b).

Comment: Several commenters argued against combining the PVC major source MACT and area source GACT. One commenter argued that it was not Congress' intent to combine MACT and GACT requirements for sources listed in separate source categories, and that if this is going to be a trend moving forward, the EPA should undertake a separate rulemaking to identify and define, for public comment, the criteria it intends to use for combining major and area source categories. The other commenter stated that if the EPA chooses to make revisions to the limits for area sources, they should first remove area sources from the PVC MACT floor database and final rule and then reopen the PVC GACT rule to properly consider the available technology and impact of proposed revisions on small area sources. One commenter disagreed with the EPA's distinction between synthetic and natural area sources, arguing that because the CAA defines only two types of sources (major and area), any further distinctions are unlawful. Thus, they argue, the EPA's artificial distinction between true and synthetic area sources in order to include synthetic area sources in the PVC major source MACT floor database is unlawful and inconsistent with past agency practice. Furthermore, one commenter argues that by choosing to include synthetic area sources in the MACT floor analysis, the EPA is providing a strong disincentive for facilities to voluntarily reduce emissions to area source levels through enforceable permit limits. One commenter disputed all of the EPA's arguments for including synthetic area sources in the MACT floor:

(1) The commenter noted that the EPA stated that Congress did not expressly exclude synthetic area sources from MACT floor determinations. The commenter argued that Congress did not need to expressly exclude these sources because the sources were already excluded because they are not part of the major source category.

(2) The commenter further noted that the EPA has previously asserted that the definition of a major source, specifically the reference to a source's potential to emit considering controls allows the interpretation that a source's potential to emit before and after controls is relevant, such that synthetic minor sources may be considered within the meaning of the major source definition and included in the MACT floor determinations for categories for major sources. The commenter argued that the definition of what constitutes a major source allows a source's potential to emit to be determined while ''considering controls'' means only that a source may install controls and render itself an area source.

(3) The commenter referred to a floor statement of Senator Durenberger that the EPA cited to support its theory that the agency must take into account the ''better'' performing sources in setting the MACT floor. The commenter argued the statement demonstrates that it is the better performing sources within the source category that must be considered, and PVC area sources are not a part of the PVC major source category.

One commenter added that for the EPA to ignore distinctions between area and major PVC sources and use the OxyVinyls Deer Park facility in MACT floor calculations is unlawful. The commenter contended that the EPA incorrectly assumes the OxyVinyls Deer Park facility is a major source. The commenter stated that the facility is a ''true'' area source in contrast to the CertainTeed Mossville synthetic minor area source. The commenter contended that the CAA does not allow the distinction the EPA makes between synthetic and natural minor area sources, and the commenter provided detail of the regulatory history concerning major and area source classifications. The commenter provided additional detail regarding the classification of the OxyVinyls Deer Park and Certain Teed facilities, referencing previous communications with the EPA in which OxyVinyls informed the EPA that the OxyVinyls Deer Park facility is an area source. The commenter contended that the EPA cannot consider any PVC area sources in the major source PVC floor database because PVC major and PVC area sources are two separate source categories under the CAA. The commenter concluded by recommending the EPA recalculate the existing major source MACT floors, excluding the Deer Park and CertainTeed facilities.

Response: In the final rule, we have developed separate standards for major and area sources. We conducted a MACT floor analysis for major sources and a GACT analysis for area sources. Further discussion of the GACT analysis is provided in section V.H of this preamble.

We have reviewed data that OxyVinyls submitted to support their comment that their Deer Park, Texas facility is a ''true'' or natural area source. Based on the information provided, we are considering OxyVinyls Deer Park facility to be an area source for purposes of this rulemaking. Therefore, we are using data from this facility and from the CertainTeed facility in Mossville, Louisiana to establish area source GACT standards. However, we have also determined that the OxyVinyls Deer Park facility is a synthetic area source for the purposes of our analyses (without determining its status for any compliance purposes) because the facility routes emissions

from their process vents to a thermal oxidizer in series with an acid-gas scrubber. Without these controls, we would project the vinyl chloride and HCl emissions to be above the major source threshold. Similarly, for purposes of our analyses, we have determined that the CertainTeed facility is a synthetic area source because it uses controls, without which, their HAP emissions are projected to be above the major source threshold.

Even though the area source facilities would be subject to the area source standards, because they are synthetic area sources, we are including the information from both facilities in our analyses establishing the MACT floor level of control for major sources. As stated in the preamble to the proposed rule, the EPA maintains that including synthetic area sources in calculating the MACT floor is consistent with CAA section 112(d). Inclusion of synthetic area sources in the MACT floor determinations is also consistent with the agency's past practice in setting standards under CAA section 112(d). The inclusion of such sources affected the MACT floor level of control for the PVC-only HCl and PVC-Combined vinyl chloride and CDD/CDF process vents emission limits. Inclusion of synthetic area sources in the MACT floor determinations also affected the MACT floor level of control for the stripped resin limit for vinyl chloride and total non-vinyl chloride organic HAP in suspension and bulk resin. The vinyl chloride and total non-vinyl chloride organic HAP MACT floor emission limits for wastewater were also affected by inclusion of synthetic area sources.

Section 112(d) of the CAA directs the EPA to establish emission standards for each category or subcategory of major sources and area sources of HAP listed for regulation pursuant to section 112(c) of the CAA. Each such standard must reflect a minimum level of control known as the MACT floor. (See CAA section 112(d).) However, section 112 of the CAA does not specifically address synthetic minor or synthetic area sources, which include those sources that emit fewer than 10 tpy of any HAP or fewer than 25 tpy of any combination of HAP, because they use some emission control device(s), pollution prevention techniques or other measures (collectively referred to as controls in this preamble) adopted under federal or state regulations. If not for the enforceable controls they have implemented, synthetic area sources would be major sources under section 112 of the CAA.

We believe the better interpretation of the statutory language and legislative history is that synthetic area sources be included in MACT floor determinations. First, the plain language of the statute makes clear that our MACT floor determinations are to reflect the best sources in a category or subcategory. For new sources in a category or subcategory, the MACT floor shall not be less stringent than the emission control that is achieved, in practice, by the *best-controlled* similar source, as determined by the EPA. (See CAA section 112(d)(3).) For existing sources in a category or subcategory with fewer than 30 sources, the MACT floor may be less stringent than the floor for new sources in the same category or subcategory, but shall not be less stringent than the average emission limitation achieved by the *best-performing* 12 percent of the existing five sources (for which the Administrator has or could reasonably obtain emissions information)) in the category or subcategory. (See CAA section 112(d)(3)(A).) Thus, section 112(d)(3) of the CAA requires that MACT floors reflect what the best-controlled new sources and the best-performing existing sources achieve in practice. These phrases contain no exemptions and are not limited by references to sources with or without controls. Therefore, they suggest that all of the best-controlled or best-performing sources should be considered in MACT floor determinations, regardless of whether or not such sources rely upon controls.

Furthermore, section 112(d)(3) of the CAA expressly excludes certain sources that meet lowest achievable emission rate (LAER) requirements from MACT floor determinations for existing sources. (See CAA section 112(d)(3)(A).) The fact that Congress expressly excluded such LAER sources, but did not also exclude synthetic area sources suggests that no exclusion was intended for synthetic area sources. Indeed, nothing in the statute suggests that the EPA should exclude a control technology from its consideration of the MACT floor because the technology is so effective that it reduces source emissions such that the source is no longer a major source of HAP. (See 68 FR 2232, January 16, 2003, stating this rationale for including synthetic area sources in the floor determination for the final NESHAP for municipal solid waste landfills.)

Some commenters argue that because the PVC major and area source categories are separate, synthetic area sources (and natural (*i.e.,* non-synthetic) area sources) fall outside the regulated source category and should not be considered in MACT floor determinations. The EPA agrees that it listed PVC major and area source categories separately. (See 57 FR 31576, July 16, 1992, and 67 FR 43112, June 26, 2002.) However, the EPA disagrees that the CAA contemplates that synthetic area sources must be treated like true area sources and excluded from MACT floor determinations. Section 112(a) of the CAA defines a major source as: Any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants * * *. (See CAA section 112(a)(1).) An area source is defined as any stationary source of hazardous air pollutants that is not a major source. (See CAA section 112(a)(1).) In the major source definition, the EPA interprets the reference to a source's ''potential to emit considering controls'' as meaning that a source's potential to emit before and after controls is relevant, such that synthetic area sources may be considered within the meaning of this definition and included in MACT floor determinations for categories of major sources. Including synthetic area sources in MACT floor determinations ensures that MACT floors reflect the best-performing sources, as the CAA requires. The EPA also considered whether the reference to a source's potential to emit considering controls in the definition of major source necessarily means a source's potential to emit after controls have been implemented. While the EPA believes it is possible to read the phrase in this manner in isolation, such an interpretation would have the effect of excluding the best-performing sources from MACT floor determinations and, therefore, would be contrary to the statutory mandate that the EPA set MACT floors based on the levels the best-controlled new sources and the best-performing existing sources achieve in practice. The statutory reference to potential to emit considering controls should be read in a manner consistent with the other requirements of CAA section 112(d) to allow for the consideration of synthetic area sources in MACT floor determinations for major sources.

In addition, the legislative history suggests that synthetic area sources should be included in MACT floor determinations. In a floor statement, Senator Durenberger stated that in implementing section 112(d)(3) of the CAA, ''the [Senate] managers intend the

Administrator to take whatever steps are necessary to assure that [the Administrator] has collected data on *all of the better-performing sources within each category.* [The Administrator] must have a data-gathering program sufficient to assure that [EPA] does not miss *any sources that have superior levels of emission control.*'' (See Environment and Natural Resources Policy Division, Congressional Research Service, 103d Cong., S.Prt. 103–38 (prepared for the United States Senate Committee on Environment and Public Works), *A Legislative History of the Clean Air Act Amendments of 1990,* at 870, November 1993, emphasis added.) This statement underscores that Congress intended for MACT floor determinations to reflect consideration of all of the sources in each category with the best emission controls. It would be inconsistent with Congress's intent and the plain language of the CAA to exclude synthetic area sources—those sources with superior controls that became synthetic area sources by implementing such controls—from MACT floor determinations.

The inclusion of synthetic area sources in MACT floor determinations is justified because of the reasons explained above.

Accordingly, we did not exclude synthetic area sources from MACT floor determinations for major sources. For more information concerning MACT floors for the final standards, see section V.E.2 of this preamble and the memorandum, *Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* in the docket.

Comment: Several commenters stated that dispersion resin limits should be based on measured concentration data and not calculated mass figures. Two commenters stated that the vinyl chloride limit proposed for dispersion resin was developed using a database that the EPA aggregated from producer submissions on a mass (pounds per day dry) basis and then re-divided by reported production volumes. The commenters listed several problems with the data used to convert the reported mass emissions to concentration limits by the EPA. The commenters recommended that the EPA simply use the underlying measured concentration data as the best and most accurate basis from which to develop the PVC MACT.

Response: For the final rule, we have revised the MACT floor-based emission limits for stripped resins. See section V.E.2 of this preamble.

Comment: One commenter stated they agree with the EPA's procedure for determining RDL. Another commenter contended that the EPA cannot justify its floor adjustment by asserting an inability to measure emissions below its triple-maximum-detection limit floor. The commenter stated that the record includes multiple sources that used lower detection limits; those sources demonstrate the feasibility of measuring emissions at lower levels. The commenter added that the agency specifies detection methods together with its standards; that detection method should have a known detection limit with a well-defined level of certainty. The commenter proposed that the agency could, accordingly, calculate its floor and as a second and independent step establish monitoring requirements that accommodate any imprecision associated with measurement, or it could utilize a safety factor. The commenter contended that the agency cannot, however, simply manipulate the limits according to standards that appear nowhere in the CAA.

Another commenter questioned the way in which the EPA addresses non-detects in air emissions. The commenter stated that multiplying by a factor of 3 is not presented in a clear way to show the rationale behind this calculation.

Response: As explained below, the final emissions limits were established using the RDL, which is based on an average, not the highest or lowest, of method detection levels for the best performing units. We agree with the commenter's suggestion to calculate the floor and then establish monitoring requirements to accommodate several factors, such as measurement precision near the detection limit.

We agree with many of the comments related to treatment of data reported as detection limit values in the development of MACT floors and emissions limits. The probability procedures applied in calculating the floor or an emissions limit inherently and reasonably account for emissions data variability including measurement imprecision when the database represents multiple tests from multiple emissions units for which all of the data are measured above the method detection level. That is less true when the database includes emissions occurring below method detection capabilities regardless of how those data are reported. The EPA's guidance to respondents for reporting pollutant emissions used to support the data collection specified the criteria for determining test-specific method detection levels.

Those criteria ensure that there is only about a 1-percent probability of an error in deciding that the pollutant measured at the method detection level is present when, in fact, it was absent. (See *Reference Method Accuracy and Precision (ReMAP): Phase 1, Precision of Manual Stack Emission Measurements*; American Society of Mechanical Engineers, Research Committee on Industrial and Municipal Waste, February 2001.) Such a probability is also called a false positive or the alpha, Type I, error. This means, specifically, that for a normally distributed set of measurement data, 99 out of 100 single measurements will fall within $\pm 2.54\ \sigma$ of the true concentration. The anticipated range for the average of repeated measurements comes progressively closer to the true concentration. More precisely, the anticipated range varies inversely with the square root of the number of measurements. Thus, if σ is the standard deviation of anticipated single measurements, the anticipated range for 99 out of 100 future triplicate measurements will fall within $\pm 2.54\ \sigma/\sqrt{3}$ of the true concentration. This relationship translates to an expected measurement imprecision for an emissions value occurring at or near the method detection level of about 40 to 50 percent.

By assuming a similar distribution of measurements across a range of values and increasing the mean value to a representative higher value (*e.g.,* 3 times MDL), we can estimate measurement imprecision at other levels. For an assumed 3 times the MDL, the estimated measurement imprecision for a 3-test-run average value would be on the order 10 to 20 percent. This is about the same measurement imprecision as found for EPA Methods 23 and 29 indicated in the ASME Precision of Manual Stack Emissions Measurements for the sample volumes prescribed in the final rule (*e.g.,* 4 to 6 dry standard cubic meters (dscm)) for multiple tests.

Analytical laboratories often report a value above the method detection limit that represents the laboratory's perceived confidence in the quality of the value. This arbitrarily adjusted value is expressed differently by various laboratories and is called limit of quantitation (LOQ), practical quantitation limit (PQL) or RL. In many cases, the LOQ, PQL or RL is simply a multiplication of the method detection limit. Multipliers range from 3 to 10. Because these values reflect individual laboratories' perceived confidence, and, therefore, could be viewed as arbitrary, we decline to adopt the LOQ, PQL or RL because such approaches in our view would inappropriately inflate the MACT

floor standards. Our alternative to those inconsistent approaches is discussed below.

Consistent with findings expressed in reports of emissions measurement imprecision and the practices of analytical laboratories, we believe that using a measurement value of 3 times a method's detection limit established in a manner that assures 99-percent confidence of a measurement above zero will produce a representative method RL suitable for establishing regulatory floor values.

On the other hand, we agree with commenters that an emissions limit determined from a small subset of data or data from a single source may be significantly different than the actual method detection levels achieved by the best-performing units in practice. This fact, combined with the low levels of emissions measured from many of the best-performing units, led the EPA to review and revise the procedure intended to account for the contribution of measurement imprecision to data variability in establishing effective emissions limits. In response to the comments and internal concerns about the quality of measurements at very low emissions limits especially for new sources, we revised the procedure for identifying an RDL

The revised procedure for determining an RDL starts with identifying all of the available reported pollutant specific method detection levels for the best-performing units regardless of any subcategory (*e.g.,* existing or new, fuel type, etc.). From that combined pool of data, we calculate the arithmetic mean value. By limiting the data set to those tests used to establish the floor or emissions limit (*i.e.,* best performers), we believe that the result is representative of the best-performing testing companies and laboratories using the most sensitive analytical procedures. We believe that the outcome should minimize the effect of a test(s) with an inordinately high method detection level (*e.g.,* the sample volume was too small, the laboratory technique was insufficiently sensitive or the procedure for determining the minimum value for reporting was other than the detection level). We then call the resulting mean of the method detection levels the RDL as characteristic of accepted source emissions measurement performance.

The second step in the process is to calculate 3 times the RDL to compare with the calculated floor or emissions limit. This step is similar to what we have used before including for the Portland cement MACT determination. We use the multiplication factor of 3 to reduce the imprecision of the analytical method until the imprecision in the field sampling reflects the relative method precision as estimated by the ASME ReMAP study. That study indicates that such relative imprecision remains a constant 10 to 20 percent, over the range of the method. For assessing the calculated floor results relative to measurement method capabilities, if 3 times the RDL were less than the calculated floor or emissions limit (*e.g.,* calculated from the UPL), we would conclude that measurement variability was adequately addressed. The calculated floor or emissions limit would need no adjustment. If, on the other hand, the value equal to 3 times the RDL were greater than the UPL, we would conclude that the calculated floor or emissions limit does not account entirely for measurement variability. Where such was the case, we substituted the value equal to 3 times the RDL for the calculated floor or emissions limit, which results in a concentration where the method would produce measurement accuracy on the order of 10 to 20 percent, which is similar to other EPA test methods and the results found in the ASME ReMAP study.

We determined the RDL for each pollutant using data from tests of all the best performers for all of the final regulatory subcategories (*i.e.,* pooled test data). We applied the same pollutant-specific RDL and emissions limit adjustment procedure to all subcategories for which we established emissions limits. We believe that emissions limits adjusted in this manner, which ensures that measurement variability is adequately addressed relative to compliance determinations, is a better procedure than the one applied at proposal, which was based on more limited data. We also believe that the currently available emissions testing procedures and technologies provide the measurement certainty sufficient for sources to demonstrate compliance at the levels of the revised emissions limits.

As for the commenter's suggestion that the EPA utilize a safety factor, the commenter provided no additional explanation of what a safety factor is, how it should be calculated and used, and no additional information to calculate such a factor.

Comment: One commenter stated that the EPA has set impossibly low limits for CDD/CDF, given the detection limits for EPA Method 23. Several commenters contended that, considering the body of available evidence on this subject, the EPA should not set limits below 0.1 nanogram toxic equivalent (TEQ) per dscm for CDD/CDF. Several commenters asserted that the CDD/CDF emission level of 0.023 nanograms per dry standard cubic meters (ng/dscm) proposed for PVC facilities is below levels that can be accurately measured.

Several commenters stated the EPA should impose work practice standards rather than emission limits to control CDD/CDF emissions or adjust the CDD/CDF standard to account for measurement uncertainty. One commenter stated that the EPA's decision to propose such conservative requirements for CDD/CDF testing is particularly surprising and unjustified in light of the EPA's own estimates of the very low overall reduction of CDD/CDF emissions that would be achieved by this rule. The commenter also noted that the EPA recognized the CDD/CDF dataset contains nearly 50-percent ''non-detect'' data. The commenter added that previous MACT rulemaking efforts for other comparable subparts, including the MACT rule for Hazardous Waste Combustors (40 CFR part 63, subpart EEE) or the Industrial Boiler and Process Heater MACT (40 CFR part 63, subpart DDDDD), typically allow for either a work practice standard or for one-time CDD/CDF emissions testing of units subject to the rule. In contrast, the commenter asserted that the EPA has not proposed to allow for work practice standards and other emission standards (*e.g.,* control of temperature in the air pollution control system and emission standards for vinyl chloride and HCl) to control CDD/CDF emissions in the PVC MACT rule and instead, proposes to establish CDD/CDF emission standards at or below the detection capabilities of EPA Method 23 along with expensive testing for CDD/CDF annually. The commenter further stated that because PVC-only plants have similar CDD/CDF emissions, PVC-only plants should not be subject to numerical limits for CDD/CDF emissions.

One commenter stated that section 112(h) of the CAA provides that ''if it is not feasible in the judgment of the Administrator to prescribe or enforce an emission standard * * * the Administrator may, in lieu thereof, promulgate a design, equipment, work practice, or operational standard'' and also cited *Sierra Club* v. *EPA,* 479 F.3d 875, 883 (DC Cir. 2007). The commenter stated that the EPA must first make a determination that ''the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations,'' not that it lacks emissions data to set a limit. The commenter added they believe that PVC facilities face precisely the type of

technological constraints in measuring for CDD/CDF that require the use of work practice standards.

Response: The commenters are correct that, at proposal, 50 percent of the CDD/CDF dataset was at non-detect levels. However, with the addition of the EDC/VCM information submitted by industry in response to the CAA section 114 request for the EDC/VCM industry, that number has decreased to 38 percent. In comparison, 10 of the Boiler NESHAP subcategories in 40 CFR part 63, subpart DDDDD contained CDD/CDF datasets with non-detect values greater than 80 percent of the data, with most having non-detects greater than 90 percent of the data. As a result, the EPA determined that a work practice standard would be appropriate for the major source Boiler NESHAP. Likewise, in the final Mercury and Air Toxics Standards signed by the Administrator on December 16, 2011, the EPA established work practice standards for CDD/CDF because the significant majority of data from all the generating units were below the detection levels of the EPA test methods. Such is not the case for the PVC data. Given the significantly greater level of detected information for PVC process vents it is apparent that CDD/CDF can be detected in PVC process vent streams. Therefore, we maintain that numerical emission limits are appropriate rather than work practices to control CDD/CDF emissions from PVCPU process vents. As discussed previously, the emission limits for CDD/CDF have been revised, based on new data collected from EDC/VCM manufacturers and new subcategories. We reviewed much larger data sets of EPA Method 23 CDD/CDF test data and determined that representative detection levels equal to 0.018 ng/dscm are achievable for sample volumes less than or equal to 6 dscm. As a result, the final rule requires a CDD/CDF TEQ emission limit of 0.038 ng/dscm for PVC-only process vents at existing and new sources, 0.051 ng/dscm for PVC-combined process vents at existing sources, and 0.034 ng/dscm for PVC-combined process vents at new sources. We estimate that 10 out of 13 sources for which we have data are able to meet the emission limits without additional control. We are not prescribing a particular control technology for the remaining facilities. Affected sources may use any control technique to meet the CDD/CDF limits. We believe sources can use techniques such as enhanced vapor recovery prior to combustion as a means to reduce chlorinated compounds resulting in less chlorine available to form CDD/CDF. For the impacts estimate, we estimated the cost for enhanced vapor recovery (*e.g.,* condensers) prior to combustion. Cost and emission reductions estimation are documented in the memorandum, *Revised Costs and Emission Reductions for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category.*

F. Emission Source Requirements

1. Process Vents

Comment: One commenter raised several issues with the proposed definition of process vent. First, the commenter argued that the definition of process vent is too broad and incorporates emission points that are already regulated under other sections of the rule. Specifically, the commenters contended that unloading and loading lines, samples, wastewater collection and treatment systems and ''other process components prior to the resin stripper'' should be removed from the definition of process vent because including them in the process vent definition is in conflict with the proposed definitions of batch and continuous process vents. The commenter contended that wastewater collection and treatment systems should be excluded because they would already be regulated under the wastewater provisions specified in 40 CFR 63.11965 and 40 CFR 63.11970 of the proposed rule. In the case of ''other process components prior to the resin stripper,'' the commenter contended that this is too broad a term, and at a minimum, the EPA should clarify what is meant by this term in the context of the process vent definition. Instead of the current proposed definition, the commenter suggested the following definition for process vent: ''Process vent means batch process vent or continuous process vent.'' The commenter also proposed that the definitions of batch and continuous process vents should provide an exclusion for gaseous streams routed to a fuel gas system. The commenter stated that because gaseous streams have a useful purpose and most other 40 CFR part 63 NESHAP exclude gaseous streams from the definition of a process vent, they should not be considered process vents in this rule.

Response: In the final rule, we have revised the definition of process vent, continuous process vent and batch process vent to provide additional clarification, and we have added a definition for miscellaneous vent. These revisions also provide additional consistency with the changes made to the affected source definition, the definition of PVCPU and the new definitions for PVC-only process vent and PVC-combined process vent. See section V.I of this preamble for a complete discussion of the revised and added definitions.

2. Equipment Leaks

Comment: Several commenters contended that the proposed requirement to have double mechanical seals and double outboard seals on rotating equipment is a beyond-the-floor control option and not a representation of the current control level within the industry. The commenters stated that there are no PVCPU that exclusively utilize double mechanical seals throughout the PVCPU, but instead these technologies are used in limited areas of the PVC production process and different technologies are used in other areas. The commenters added that because the proposed requirements are actually beyond-the-floor options, the revised rule should allow subject facilities the option to comply with all the provisions of the promulgated 40 CFR part 63, subpart UU MACT standard. The commenters also contended that installation of further controls will constitute a burden on facilities and will provide minimal benefits in the form of potential HAP emission reductions. One commenter pointed out that proposed 40 CFR 63.11915(b)(1) and (2) would require pump seal installations that are optional under 40 CFR 63.1026(e) of subpart UU. Likewise, they argued, proposed 40 CFR 63.11915(b)(5) would require agitator seal installations that are optional under 40 CFR 63.1028(e) of subpart UU. The commenter argued that the EPA should revise the pump and agitator seal section to be consistent with subpart UU.

Response: The proposed requirement that reciprocating pumps, reciprocating and rotating compressors and agitators be equipped with double seals, or equivalent, was in error. In the final rules, we have adopted the MACT floor level of control for equipment leaks for all components (which is compliance with 40 CFR part 63, subpart UU), which gives affected sources the option of installing double seals, or equivalent, or complying with the LDAR requirements of the equipment leak standards.

Comment: Several commenters opposed the proposed requirements for PRD that any release is an automatic violation. The commenters contended that this requires a costly retrofit with little additional environmental benefit. Commenters contended that this provision is in contradiction to a long-standing recognition by the EPA that

some PRD discharges are necessary; for example, they stated the current rule recognizes that proper operation of PRD (including using emergency relief valve discharges, currently exempted) is a necessary component of safe and responsible plant operation. One commenter recommended that the EPA revise the proposed language at 40 CFR 63.11915(c) to read ''[a]ny release to the atmosphere from a pressure relief device in HAP service, except for an emergency relief discharge * * * constitutes a violation of this rule.''

Several commenters added that in the affirmative defense requirements, the EPA acknowledges safety-related relief valve discharges. Commenters pointed out that the affirmative defense criteria state in 40 CFR 63.11895(a): ''(4) If the excess emissions resulted from a bypass of control device components or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; * * * (6) All emissions monitoring and control systems were kept in operation, if at all possible, consistent with safety and good air pollution control practices.'' In addition, some commenters contended the low reportable quantity thresholds and Toxic Release Inventory reporting are adequate incentives for facilities to minimize discharge events, thus, allowing for affirmative defense is appropriate. The commenters stated other MACT standards like the HON and the Consolidated Air Rule also make allowances in the closed vent system bypass rules that account for safety-related pressure valve releases, and, thus, that in order to avoid unsafe conditions and prevent loss of life, personal injury or severe property damage, the EPA should allow facilities to claim an affirmative defense for safety-related releases.

Response: PRD releases are already prohibited at all PVC facilities by the part 61 NESHAP, except when ducted to a control device meeting the 10 ppm limit that applies to process vents or in an emergency relief discharge (40 CFR 61.65(a)). In this CAA section 112(d) NESHAP rulemaking, which builds upon the part 61 NESHAP, we have developed emission standards that are continuous and consistent with *Sierra Club* v. *EPA.* Commenters do not have any legal basis for failing to apply an emission standard to PRD releases. We believe that PRD releases at PVC facilities are caused by malfunctions or other occurrences. However, such circumstances do not justify commenters' suggestion that no standard applies to such releases. Further, the proposed affirmative defense would be available for PRD releases caused by malfunctions. Therefore, we are not exempting emergency PRD releases in the final rule. See *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008). Therefore, the final rule provides that a PRD release, unless ducted to a control device meeting the process vent limits, is a violation of the emission standard.

Release events from PRD have the potential to emit large quantities of HAP. In that case, it is important to identify and control any releases in a timely manner. Therefore, we are requiring you to install electronic indicators on each PRD that would be able to identify and record the time and duration of each pressure release. In addition to ensuring that significant releases are addressed, these requirements will also alert operators to any operational problems with the PRD seal that could be resulting in emissions to the atmosphere. Furthermore, if danger is imminent and a PRD releases to the atmosphere, facilities have the ability to assert an affirmative defense.

As discussed in the proposed rule, we are including an affirmative defense to civil penalties for exceedances of emission limits. See 40 CFR 63.12005 of the proposed rule (defining ''affirmative defense'' to mean, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding). We also are requiring that other regulatory provisions to specify the elements that are necessary to establish this affirmative defense; the source must prove by a preponderance of the evidence that it has met all of the elements set forth in 40 CFR 63.11895 of the proposed rule. (See 40 CFR 22.24.) The criteria ensure that the affirmative defense is available only where the event that causes an exceedance of the emission limit meets the narrow definition of malfunction in 40 CFR 63.2 (sudden, infrequent, not reasonable preventable and not caused by poor maintenance and or careless operation). For example, to successfully assert the affirmative defense, the source must prove by a preponderance of the evidence that excess emissions ''[w]ere caused by a sudden, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner * * *.'' The criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions in accordance with 40 CFR 63.11895 of the proposed rule and to prevent future malfunctions. For example, the source must prove by a preponderance of the evidence that ''[r]epairs were made as expeditiously as possible when the applicable emission limitations were being exceeded * * *'' and that ''[a]ll possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment and human health * * *.'' In any judicial or administrative proceeding, the Administrator may challenge the assertion of the affirmative defense and, if the respondent has not met its burden of proving all of the requirements in the affirmative defense, appropriate penalties may be assessed in accordance with section 113 of the CAA (see also 40 CFR 22.77).

Comment: Several commenters argued that multiple systems and procedures already exist at facilities to detect and remedy releases from PRD and, thus, automatic release indicators are redundant. These commenters stated retrofitting existing PRD with release indicators would be costly, and installation of these devices will not result in any emission reduction because they are indicators only. Commenters contended that the PVC industry is currently subject to both environmental and safety standards that adequately address concerns with the detection of emissions from relief devices, such as 40 CFR part 61, subpart V requirements in 40 CFR 61.242–4. Two commenters pointed out that most PVC plants typically have rupture discs installed below relief valves that discharge to the atmosphere, and monitor the space between the rupture disc and the PRD for leaks on a routine basis using a local pressure indicator and log this information for safety purposes. One commenter contended that the EPA should at least perform a cost-benefit analysis before finalizing this requirement. Several commenters contended that given the cost, multiple systems currently in-place, and the lack of any emissions reductions, the EPA should delete the requirement for release indicators at proposed 40 CFR 63.11915(c).

Response: We acknowledge, based on information from the commenters, that the PVC industry typically installs area monitors in addition to rupture discs in series with relief valves. We also acknowledge other commenters' statements that multiple systems and procedures exist to detect and remedy releases from PRD, although they did not identify specific systems or procedures for the EPA to consider. However, the commenters did not suggest that the EPA adopt any type of

monitoring or recordkeeping requirement for PRD discharges, and commenters' statements taken as a whole do not support a conclusion that all PVC facilities currently install and use effective means to detect and record PRD discharges for all of their PRD.

Release events from PRD have the potential to emit large quantities of HAP, and a large number of these releases that may occur may not be identified and controlled in a timely manner, and may be due to repeat problems that have not been corrected. In the final rule, PRD are required to be equipped with indicators to identify and record the time and duration of each pressure release. The requirement to install indicators to identify and record the time and duration of each pressure release is a compliance requirement to ensure the PRD requirements in the final rule are met. They help ensure that any PRD discharge, *i.e.,* a release of uncontrolled HAP emissions, is immediately known to the source operator and recorded for future consideration by the facility or regulatory authority, so that remedial or preventative action can be taken to minimize or avoid PRD discharges in the future. The cost of the electronic indicators is incorporated into the costs of the final rule. Our cost estimates are based on the best information available to the EPA. While commenters indicated the EPA costs were underestimated, they did not provide sufficient information to revise our estimates.

Additional discussion on our decisions regarding PRD is found in the response to the previous comment.

3. Resin

Comment: One commenter noted that 40 CFR 63.11960(d)(2) and (3) of the proposed rule states that: ''If an operating limit is a range, then you must operate the stripper as close as possible to the maximum or minimum operating limit for the resin stripper, whichever results in higher emissions (i.e., lower emission reduction).'' The commenter added that the purpose of an operating range is to allow for normal variability and fluctuation inherent in the process, and by requiring that compliance measurements be performed at operating conditions resulting in the highest emissions, the agency is artificially increasing both the chance that a single compliance measurement would be out of compliance, as well as the overall emissions loading used to evaluate the environmental performance of the unit. The commenter submitted that such operating limits applied to resin strippers are inappropriate and that where conditions exist that operating limits are appropriate, proper measurement protocol would be to require sampling within the normal operating ranges, not at a particular point within.

Response: In the final rule, for stripped resins as well as for process wastewater, we are no longer requiring sources to comply with operating limits and conduct continuous parametric monitoring. The requirements to conduct resin sampling are sufficient to assure compliance with the stripped resin limits.

In our review of the resin sampling data in conjunction with the establishment of additional subcategories for stripped resins (see discussion above), we recognize that while resin subcategories are established at the type of resin, there are a multitude of resin grades produced by facilities that fall under a general resin type. Some facilities may produce on the order of hundreds of different grades for any one particular resin type. For the same reasons outlined as to why we are establishing additional subcategories for stripped resins in the final rule, we recognize that there are also differences in the formulations, recipes and processing conditions in the polymerization reactors and/or resin stripper for different resin grades of the same resin type. The establishment of resin subcategories at the grade level would be impractical because an inordinate number of subcategories would have to be established for hundreds, if not thousands, of different grades of resin. As such, the MACT limits established at the level of resin type will account for the inherent variability in not only the formulation and recipes of the different resin grades, but also the variation that must exist in the polymerization and stripping of different resin grades in order to meet established resin specifications and end-user requirements. The final rule requires that compliance with the stripped resin limits be demonstrated based on a 24-hour arithmetic average of samples taken every 3 hours for continuous strippers or at the end of each batch for batch strippers. The frequency of resin sampling that is required under the final rule is sufficient to ensure that continuous and batch stripping operations are in continuous compliance with the stripped resin limits.

Therefore, requiring facilities to establish parameters on their stripping operations that must be monitored and maintained to ensure continuous compliance is not practical considering the multitude of operating limits and ranges that would need to be established to cover the production of numerous grades of resin. We further recognize that given the establishment of resin limits at the outlet of the resin strippers, we can allow flexibility in the operation of the strippers while ensuring that the resin limits are being met as the resin exits the stripper. Therefore, we have removed all requirements for continuous parametric monitoring of resin strippers from the final rule.

Comment: One commenter contended that a work practice standard is needed for startup periods for the resin slurry strippers. The commenter does not normally take samples for vinyl chloride within 2 hours of a PVC resin slurry stripper startup, but provided a table of information in their comment letter on four investigations undertaken on different days at different plants. The commenter stated that the first three products tested were relatively easy-to-strip grades, while the fourth product was a relatively hard-to-strip pipe-grade resin. The commenter stated that a relatively short startup vinyl chloride spike is present for easy-to-strip resins, but that for the higher volume pipe grade resin with lower porosity (hard-to-strip), the startup spike lasted at least 1 hour and, possibly, 2 hours. The commenter contended that, based on the variability seen in the slurry stripper startups, it is not possible to set a single numerical limit for startup conditions. Therefore, the commenter requested that the EPA establish a work practice allowing a 2-hour time period following startup when no vinyl chloride samples shall be used for compliance purposes.

Response: The resin limits apply at all times including during periods of normal operation and during periods or startup and shutdown. The variability incorporated into the stripped resin limit calculation for each resin type will sufficiently allow for periods of concentration spiking during periods of startup. Compliance with the stripped resin limits is based on a 24-hour arithmetic average of samples taken every 8 hours for continuous strippers or at the end of each batch for batch strippers. For a continuous stripper, samples must be taken every 8 hours or for each grade, whichever is more frequent. We believe the 24-hour averaging time and 8-hour sampling frequency will allow sources to demonstrate compliance with the stripped resin limits. Finally, section 112(h) of the CAA authorizes the EPA to set work practice standards in lieu of numerical emission limits only where it is not feasible to prescribe or enforce a numerical emission standard. This statutory threshold is further defined to

mean that HAP cannot be emitted ''through a conveyance designed and constructed to emit or capture such pollutant'' or ''the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.'' The commenter did not provide any information to satisfy this statutory prerequisite to support the application of work practice standards to startup periods for resin strippers. Therefore, we disagree that a work practice should be established in lieu of a numerical emission limit for resin strippers during periods of startup.

4. Wastewater

Comment: Several commenters contended that owner/operators should be exempt from the proposed initial and continuous vinyl chloride and HAP sampling requirements if they can document, through process knowledge or historical sampling data, that no HAP are present in the wastewater stream. The commenters proposed that all documentation would be available to an inspector. Commenters contended that the HON at 40 CFR 63.144(b) and (c) (subpart G) allows for the use of sampling, bench scale data and/or process knowledge to determine concentration and flow rate of a wastewater stream.

Response: In the final rule, we are requiring that for any process wastewater streams that are not being treated prior to being discharged from the PVCPU, facilities must sample those streams and determine if treatment is required to meet the process wastewater limits for vinyl chloride and total non-vinyl chloride organic HAP. If, after the initial sampling, treatment is not required to meet the limits, then those streams must only be retested annually or when a process change is made. The final rule contains limits based on the MACT floor for total non-vinyl chloride organic HAP. The total HAP concentration and flow rate cutoffs were included as a beyond-the-floor option at proposal in an effort to make the wastewater requirements consistent with other chemical sector rules, because the option was cost-effective. Based on our evaluation of the total non-vinyl chloride organic HAP limits, we determined that the 1,000 ppmw threshold for total organic HAP, above which facilities would have been required to comply with the HON wastewater provisions, was not appropriate for the final rule as all streams must meet a limit for vinyl chloride and total non-vinyl chloride organic HAP, that, when combined (*i.e.,* 116.8 ppmw for existing sources and 0.30 ppmw for new sources), is much lower than the previously proposed 1,000 ppmw threshold. We, therefore, removed the total HAP flow rate cutoff and concentration cutoff, and flow rate determination requirements from the final rule. Annual re-sampling and testing of untreated streams is not overly burdensome and provides more reliable results than engineering estimates or process knowledge on which to determine whether at some point in the future, an untreated stream must be treated to meet applicable limits.

Comment: Some commenters stated that the EPA should provide exemptions for certain safety-related streams. The commenters contended that certain events may occur at a PVCPU that require the release and subsequent discharge of water, such as a fire or the use of eye wash stations and safety shower, and these activities have little to no chance of emitting HAP. The commenters stated that safety-related streams are identified in HON at 40 CFR 63.100(f)(1) through (11). In the absence of such exemptions, the commenters concluded that facility employees will be confused or hesitant because of a compliance dilemma at the worst possible time.

Several commenters asked for clarification about which in-process wastewater streams require control and treatment. Several commenters contended that maintenance wastewater streams should be regulated independently of process wastewater. The commenters stated that the capture of maintenance wastewater emissions is infeasible and thus warrants use of a work practice standard. The commenters stated that there are no known practical and effective methods for collecting and controlling fugitive emissions from a wastewater stream, which can vary considerably in HAP concentration and flow rate. Several commenters argued that maintenance wastewater should not have a prescribed limit, but should have work practices to remove residuals prior to generation. A commenter stated that maintenance activities are non-routine, highly variable activities that require the purging, clearing and cleaning of equipment in preparation for safe handling by personnel. Some commenters added that maintenance wastewaters include dilute concentrations of HAP because industry takes efforts to remove residual HAP before equipment is flushed. The commenters concluded that quantifying a concentration to establish compliance with a limit would be extremely difficult if not impossible, because the ''acceptable'' level would be based on the specific circumstances involved. The commenters added that other MACT standards like the HON and MON provide a separate management option for maintenance or turnaround wastewater.

The commenters contended that streams should be clearly defined by the point of determination (POD) and not the proposed point of generation (POG). The commenters added that the POG concept is not defined or explained within either the VCM NESHAP or the proposed PVC MACT. Other MACT standards related to chemical process industries provide for sampling at the POD and have exemptions in the rule related to the definition of wastewater.

Response: We agree with the commenters that it is not feasible to collect wastewater resulting from maintenance activities at PVC facilities such that it could be contained and routed to a wastewater treatment system. We disagree that maintenance wastewater generation activities are non-routine. We maintain that maintenance activities at PVC facilities are routine, but those activities result in the generation of wastewater in such a manner that it cannot be collected, enclosed and routed to a wastewater treatment system or otherwise managed in a controlled or enclosed system as process wastewater can. PVC facilities reported a variety of different work practices used for maintenance wastewater, but did not provide sufficient description or information necessary to determine the effectiveness of any one work practice alone or relative to other work practices. Furthermore, these streams can vary considerably in HAP concentration. Therefore, it is not feasible to prescribe or enforce an emission standard for maintenance wastewater and maintenance wastewater streams should be regulated separately from process wastewater. In the final rule, maintenance wastewater is not subject to the same requirements as process wastewater but instead is subject to work practice standards. We are incorporating into the final rule the maintenance wastewater work practice requirements used in other EPA standards, such as the HON. These work practice standards include preparing a description of maintenance procedures for management of wastewater generated from the emptying and purging of equipment in the process during temporary shutdowns for inspections, maintenance, and repair and during periods which are not shutdowns. As in the HON, facilities can effectively implement these work practices to prevent or mitigate the

emissions of HAP from wastewater generated during maintenance activities. We also agree that certain safety related activities that may generate a wastewater stream not be subject to the requirements for process wastewater. Therefore, we have added separate requirements in the final rule for maintenance wastewater streams. Furthermore, we have clarified that certain safety-related streams are not considered wastewater. These two revisions in the final rule are consistent with wastewater provisions in other MACT standards, such as the HON and MON. We have also removed all terminology related to ''point of generation'' and ''point of determination.'' These terms created confusion for determining compliance with the standards. The final rule includes simplified language regarding where process wastewater streams must be tested to determine if treatment is required to meet the process wastewater limits. In the final rule, we are requiring that wastewater be measured immediately as it leaves a piece of process equipment and before being mixed with any other process wastewater stream. We have also clarified that the limits must be met before the process wastewater stream is discharged from the PVCPU.

5. Heat Exchange Systems

Comment: Several commenters stated that the proposed heat exchange systems monitoring methods are more restrictive than other 40 CFR part 63 NESHAP. The commenters suggested that the EPA broaden proposed leak testing and compliance requirements for cooling water supply (in closed-loop recirculation systems) and required heat exchange systems. The commenters identified several alternate compliance methods: (1) EPA Method 107, which focuses on vinyl chloride, not HAP, be included as a compliance option. Commenters contended that EPA Method 107, which is conducted on-site, allows for fast results (24 hours, while EPA SW–846 Method 8021B tests can take a week) and quicker repairs to any leaking exchange systems; (2) EPA SW–846 Method 8260B, which commenters said should replace EPA SW–846 Method 8021B. Commenters stated that EPA SW–846 Method 8260B has a more comprehensive target chemical list; test laboratories no longer have the equipment or personnel capable of performing EPA SW–846 Method 8021B; and EPA SW–846 Method 8021B is not incorporated by reference in 40 CFR 63.14 as is the TCEQ Modified El Paso Method.

Response: The leak action level for heat exchange systems is not an independent limit on emissions, but rather is used as an indicator that there may be a leaking component and as a trigger level to take further action to remedy the leak. As discussed in the preamble to the proposed rule, the leak action level and associated repair requirements for heat exchange systems are work practice standards under section 112(h) of the CAA and not numerical emission limits, similar to requirements applicable to equipment leaks. The proposed leak action levels and monitoring frequencies were established based on the information provided to us in responses to our August 21, 2009, CAA section 114 survey and testing request of the PVC industry and subsequent requests by us of the industry requesting clarification on heat exchange system monitoring practices used in the industry.

At proposal, we required measurement of total strippable VOC for detecting leaks of HAP into the cooling water, which are ultimately emitted downstream. Based on comments received, we have added an option for facilities to monitor their heat exchange systems using EPA Method 107, for vinyl chloride to monitor for leaks of total strippable VOC into cooling water. Vinyl chloride is the primary raw material in the manufacture of PVC and is present in all process streams. Therefore, if either total strippable VOC or vinyl chloride leaks are detected, repair of the leaks will control the leaks for all HAP. The process streams are cooled by cooling water in non-contact heat exchangers. If there is a leak of a process stream into the cooling water, for example, through a broken heat exchanger tube bundle, vinyl chloride concentrations would increase in the cooling water. A leaking process stream that contains other HAP in addition to vinyl chloride would also leak those other HAP into the cooling water. In a recirculating heat exchange system that contains a cooling tower, the cooling water is exposed to the atmosphere at the cooling tower. It is sufficient to establish a leak action level for heat exchange systems at PVC facilities based on a level of vinyl chloride that, if detected in the cooling water, would indicate a leak of the process stream and all HAP contained in that process stream into the system. Therefore, we determined that for this industry, vinyl chloride is also an appropriate indicator to determine if there is a leak in a heat exchange system. Furthermore, EPA Method 107 is an established method for the analysis of vinyl chloride in wastewater samples.

Our approach at proposal to determining a MACT floor for heat exchange systems was to calculate the average (arithmetic mean) leak action level from the five reported lowest leak action levels to determine the floor for existing sources, and the single lowest leak action level to determine the floor for new sources. Similarly, we looked at the range of monitoring frequencies and selected the median frequency from nine heat exchange systems for existing sources and the most frequent monitoring period for new sources. We have revised the leak action level at the MACT floor for existing sources based on the median leak action level for total strippable VOC from the top five lowest leak action levels reported. Similar to our approach to determining the MACT floor for equipment leaks, it is appropriate to evaluate the median of leak action levels instead of calculating the arithmetic mean. We determined that the leak action level for total strippable VOC for the existing source MACT floor is 50 ppbw. The lowest leak action level reported was also 50 ppbw and represents the revised MACT floor leak action level for new sources. Therefore, in the final rule, the leak action level for total strippable VOC in cooling water is 50 ppbw with monthly monitoring, for both existing and new sources. The methods used by facilities to monitor for VOC include the TCEQ Modified El Paso Method and EPA Method 624. In the final rule, we have revised the cooling water monitoring method from EPA SW–846 Method 8021B to EPA Method 624, but we have not changed the option to monitor using the TCEQ Modified El Paso Method.

To develop a leak action level for vinyl chloride, we looked at the leak action levels and monitoring frequencies reported by facilities that perform vinyl chloride monitoring using EPA Method 107. We determined a vinyl chloride leak action level based on the median leak action level reported by facilities that monitor for vinyl chloride. Those leak action levels range from 50 ppbw to 5,000 ppbw with monitoring frequencies between monthly and quarterly. To determine the MACT floor level of control, we conducted an analysis similar to the analysis conducted for equipment leaks; an analogous emission source that is fugitive in nature where control is a work practice and not an emission limit. The existing source MACT floor level of control for equipment leaks was calculated using the average (median) level of control of work practices at the best-performing five sources. We

determined that the median leak action level for heat exchange systems was 50 ppbw. The MACT floor analysis results in a leak action level for vinyl chloride for existing sources of 50 ppbw with monthly monitoring. The lowest leak action level reported was also 50 ppbw and represents the revised MACT floor for new sources. Therefore, in the final rule, the leak action level for total strippable VOC in cooling water is 50 ppbw with monthly monitoring, for both existing and new sources. This analysis is documented in the memorandum, *Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* and is available in the docket.

6. Other Emission Sources

Comment: One commenter stated that in the preamble to the proposed rule, the EPA has indicated that for ''other emission sources,'' requirements from part 61 NESHAP constituted the MACT floor level of control and that, in turn, was used to set the proposed limits, which requires complying with a vinyl chloride percent reduction. However, the commenter added, the rule requires sources to comply with a total HAP percent reduction, while the preamble only requires sources to comply with a vinyl chloride percent reduction. The commenter contended that sources have been using a method for sampling and detecting vinyl chloride for years, and measuring total HAP will introduce an additional layer of complexity to the compliance requirement. The commenter requested that the EPA review the rule language and make it consistent with the preamble language by replacing total HAP with vinyl chloride.

Response: In the final rule, as in the proposed rule, we are requiring work practices that require venting the emissions from process components and equipment through a closed vent system to a control device prior to opening to minimize emissions. This is typically achieved by sweeping the component or equipment several times with nitrogen to reduce the concentration of HAP in the vapor space of the component or equipment. These work practices will reduce emissions of all HAP present in the component or equipment prior to opening. In the final rule we are setting standards for this emission source based on vinyl chloride because the part 61 NESHAP, which constitutes the MACT floor level of control for reactor and equipment openings, requires work practices to specifically control vinyl chloride emissions. It is appropriate to continue to set the standards based on vinyl chloride because it will always be present at this emission point, and controlling it will control all other HAP.

Comment: Commenters stated that gasholders should not be regulated as storage vessels, but should be considered as surge control vessels, due to their process functions. Specifically, commenters contended that based on the CAA liquid storage definitions and associated requirements, gasholders do not meet the definitions of ''fixed roof'' storage vessel or ''floating roof'' storage vessel and, thus, recommended that gasholders be defined as surge control vessels in 40 CFR 63.12005. One commenter also agreed with the EPA that gasholder seal water should not be regulated as wastewater.

The commenters stated that it is impractical to measure gasholder fugitive emissions or route them to a stack, thus work practices should be used to control these gasholder emissions. One commenter recommended that the EPA regulate PVC MACT gasholders in the same way as other surge control vessels at 40 CFR part 63, subpart H. The commenters stated that the PVC MACT standard for gasholders should be a combination of equipment control and procedural requirements. The commenter described studies undertaken to determine the feasibility of certain control technologies like the use of floating objects to cover the water seal, finding that though these approaches can reduce emissions, they have drawbacks as well, and thus should be used in combination with procedural standards.

One commenter provided information related to emissions and controls for gasholders, as requested by the EPA in the preamble. The commenter stated that gasholders are important for safety and stability of the operation in the PVC process, with the process equipment specifically designed around gasholders to maintain safe pressure and gas flow to the closed vent and vinyl chloride recovery systems. According to the commenter, any changes to the design of the existing system could compromise safety procedures and would impose a burdensome capital investment. Finally, the commenter recommended the use of floating objects, such as balls, hallow disks, an oil layer or rubber mats, in the gasholder water seal for emissions reductions, because it is a flexible system that provides a consistent degree of control without creating additional waste management concerns.

Response: In the proposed rule, we requested comment on techniques to control emissions from gasholders. We reviewed the information submitted by the industry and have concluded that it is not feasible to prescribe or enforce an emission standard for emissions of vinyl chloride or other HAP from the water seal and the outside of the floating bell on gasholders. For PVC facilities that have gasholders, they are an integral part of the vinyl chloride recovery process and are connected to the closed vent system that collects and routes process vent emissions from process components to the vinyl chloride recovery system. After vinyl chloride recovery, any remaining process vent gasses are routed through the closed vent system to a control device. There are, however, emissions from gasholders that originate from the water seal and the outer portion of the floating bell that are fugitive in nature. The water seal contacts vinyl chloride and other HAP contained in the gasholder, and thus, there is the potential to emit HAP from the water in the gasholder seal and the thin film of water that accumulates on the outer surface of the floating bell. It is not technically practicable to route these emissions into or through a conveyance designed and constructed to capture and control them to an enforceable emission limit. Therefore, in the final rule, we are promulgating a work practice and equipment standard consistent with the provisions of section 112(h) of the CAA. In the final rule, we are requiring facilities to install and maintain floating objects on the surface of the gasholder water seal to minimize emissions of vinyl chloride and other HAP. We are also requiring facilities to develop a standard operating procedure for each gasholder to ensure that the floating objects are properly maintained and that emissions are minimized.

G. Initial and Continuous Compliance and Recordkeeping and Reporting

Comment: Three commenters stated that the EPA should remove CDD/CDF CEMS from the rule. The commenters contended that CDD/CDF CEMS technology is not well developed. One commenter stated that an EPA CDD/CDF CEMS study noted that, within the range of 1–10 ng/dscm, TEQ relative accuracy was reported between 23 percent and 75 percent. The commenter contended that the technology would not be useful with such a wide range of relative accuracy at the proposed limit. Another commenter stated that the technology is not commercially available in the United States. Another commenter indicated that monitors in use are mainly in other countries. Another commenter added that several of the available monitors are not continuous because they are not real

time and require using a third party lab for results.

Response: We agree with the commenter on the availability of CEMS for CDD/CDF. CEMS for CDD/CDF and HCl are still being developed and the EPA does not have specifications for the technology currently. In the final rule, we have removed the requirement for CDD/CDF and HCl CEMS, but have retained them as an option for existing and new sources once performance specifications have been promulgated.

H. Area Sources

Comment: One commenter stated that, if the PVC MACT and GACT are combined, the EPA needs to fully consider the cost of the MACT on area sources and modify the requirements to minimize the burden on area sources. The commenter stated that GACT standards required by CAA section 112(d)(5) are different from MACT standards under CAA section 112(d)(3) and, though the technologies employed in these facilities are similar, the EPA has not performed the required economic analysis in setting GACT. One commenter stated that, given the burdens on reduced workforces at smaller facilities, scaled-back requirements such as reduced stack testing frequency or reduced CPMS requirements are warranted and will have no negative impact on air emissions or compliance at area source facilities. The commenter added that the economic impact of the proposed PVC MACT on area sources makes these measures necessary for the facilities to remain financially viable.

One commenter stated that the proposed GACT standard for process vents for vinyl chloride and CDD/CDF are not appropriate or cost effective, based on small emissions reduction and high cost calculated in the EPA's analysis. The commenter added that these limits are redundant since total organic HAP includes vinyl chloride and CDD/CDF and, thus, they contended that the vinyl chloride standards should be eliminated.

One commenter made several comments regarding the pollutants proposed for regulation for area sources under GACT. The commenter stated that regulation of ''total HAP'' and ''CDD/CDF'' under the area source GACT standard is not warranted because, although the agency has discretion to regulate all urban HAP for area sources, total HAP is not an urban HAP (they contend that classifying total HAP as an urban HAP would make the list meaningless), and CDD/CDF is not a HAP at all (thus, the EPA has no authority to regulate CDD/CDF under CAA section 112). Furthermore, the commenter contended that control technologies already used by CertainTeed to control vinyl chloride also achieve control of individual organic HAP. For CDD/CDF, the commenter pointed out that the EPA's own analysis showed that the proposed regulation would achieve little, if any, reductions. The commenter concluded that there is no benefit to establishing a standard for total HAP or CDD/CDF. The commenter added that the regulation of HCl under the area source GACT standard is not warranted either. They contended that, because the EPA has the discretion to revise the GACT standard only as necessary, the EPA must first determine that regulation of HCl is necessary. Instead, the commenter stated that the EPA seeks to regulate HCl emissions and suggests that such regulation is ''appropriate'' simply based on the fact that such emissions ''are generated.'' In light of this, the commenter concluded that the proposed GACT standards for HCl should not be finalized.

Response: We proposed GACT standards for PVC area sources based on the proposed MACT standards for major sources. For the final rule, we have updated our analysis of area source GACT, considering comments received, including our analysis of cost considerations. Our revised GACT analysis assesses each PVC emission point (*e.g.,* process vents, stripped resin, equipment leaks, etc.) individually, for both existing and new sources, to determine the appropriate level of control, considering cost and emission reduction. The GACT analysis was conducted for the same subcategories as major sources.

Section 112(d)(5) of the CAA authorizes the EPA to promulgate standards or requirements for area sources ''which provide for the use of generally available control technologies or management practices [GACT] by such sources to reduce emissions of hazardous air pollutants.'' We issued such standards for PVC area sources in 2007.

Under CAA section 112(d)(6), we are required to ''review, and revise as necessary (taking into account developments in practices, processes, and control technologies), emission standards promulgated under this section no less often than every 8 years.'' With this rulemaking, we are fulfilling our obligation to review and revise, as necessary, the PVC Production area source standards. The 2007 NESHAP for PVC Production area sources (40 CFR part 63, subpart DDDDDD) are based on GACT. The area source NESHAP set emission limits only for vinyl chloride, which was the pollutant for which we needed the PVC production area source category to meet our 90-percent obligation in CAA sections 112(c)(3) and (k)(3)(B). In this final rule, we are tightening emission standards for vinyl chloride under CAA section 112(d)(6). We are also establishing emission standards for CDD/CDF and THC for process vents (with an alternative compliance limit for total organic HAP) and total non-vinyl chloride organic HAP for stripped resins and wastewater under CAA section 112(d)(5). We are also requiring generally available management practices for PVC area sources under CAA section 112(d)(5). We are not setting separate limits for HCl from process vents at PVC area sources.

In this final rule, we have determined that area source emission limits should be set for THC as a surrogate for organic HAP, along with limits for CDD/CDF and vinyl chloride, for process vents, and for total non-vinyl chloride organic HAP and vinyl chloride for stripped resins and process wastewater. We discussed earlier in this preamble our specific reasons for establishing emissions limits for these pollutants from PVC facilities. We also determined that it is appropriate to provide a total organic HAP limit as an alternative to the THC limit for process vents at area sources, just as we did for PVC major sources. We disagree with the commenter who states that the EPA should not establish a total organic HAP limit (or total non-vinyl chloride organic HAP limit for stripped resins and process wastewater) because total organic HAP is not an urban HAP. We note that the commenter concedes that the agency has discretion to regulate all urban HAP for area sources. The commenter also does not dispute that PVC facilities emit several organic urban HAP, beyond vinyl chloride.

Moreover, as the EPA has explained in other area source rules, the agency has authority to regulate all HAP, not only urban HAP, from area source categories listed pursuant to CAA section 112(c)(3). See, *e.g.,* Chemical Manufacturing Area Sources NESHAP proposed rule, 73 FR 58352, 58358, October 6, 2008, and final rule, 74 FR 56008, 56017–18, October 29, 2009).[4]

[4] CAA section 112(d)(5) states that for area sources listed pursuant to CAA section 112(c), the Administrator may, in lieu of CAA section 112(d)(2) ''MACT'' standards, promulgate standards or requirements ''applicable to sources'' which provide for the use of GACT or management practices ''to reduce emissions of hazardous air pollutants.'' This provision does not limit the agency's authority to regulating only urban HAP

We are setting emission limits for total organic HAP for process vents (and total non-vinyl chloride organic HAP for stripped resin and process wastewater) for several reasons. First, the compliance measures that we expect sources to adopt to meet the final limits are equally effective at controlling emissions of non-urban organic HAP as urban organic HAP. Second, there is little, if any, additional cost for implementing those compliance measures at PVC process vents, stripped resin and process wastewater. Third, we are applying the standards to total organic HAP or total non-vinyl chloride organic HAP because many of the area sources emit a significant amount of non-urban organic HAP in addition to urban organic HAP, for example, the nationwide ratio of total organic HAP to urban organic HAP at affected area sources is more than 3 to 1. Finally, we believe our approach is consistent with certain industry comments that support using total organic HAP limits as the best means of achieving HAP emission reductions under CAA section 112(d) without fundamentally changing the PVC product being produced for sale by these facilities.

We have determined that area sources will not have to install different controls or implement different compliance strategies and will incur little, if any, additional cost to comply with the standards for total organic HAP (and total non-vinyl chloride organic HAP). Moreover, the commenter does not refute that the expected compliance measures in the PVC industry are equally effective at removing non-urban organic HAP, as urban organic HAP. For all of these reasons, we are applying these standards to process vents, stripped resin and process wastewater at PVC area sources. In addition, the comment that we should limit area source standards to only the urban organic HAP conflicts with other industry comments advocating THC as a surrogate. As we explained previously in preamble section V.C, THC is a reasonable surrogate for controlling all organic HAP from PVC process vents. However, while control of THC ensures control of all organic HAP (as does the total organic HAP alternative), THC cannot differentiate between organic HAP that is urban HAP and organic HAP that is not urban HAP. The commenter's statement further conflicts with our determination that a total non-vinyl chloride organic HAP emission limit is an appropriate limit for stripped resins and process wastewater (see discussion at preamble section V.C).

We disagree with the commenter's statement that CDD/CDF is not a HAP. We are authorized to regulate the CDD/CDF class of HAP. While dibenzofuran and 2,3,7,8-TCDD are identified by name as HAP in CAA section 112, all CDD/CDF are polycyclic organic matter and, as such, we have the authority to regulate these compounds.

We disagree with the commenter who stated reduced stack testing frequency or reduced CPMS requirements are warranted for area sources. We believe that these requirements are necessary to demonstrate compliance with the emission limits regardless of the size of the facility or the magnitude of emissions. Therefore, the same testing and monitoring requirements apply to both major and area sources. Since the PVC-only and PVC-combined process vent area source limits are based on the facility in each subcategory, no additional controls would be needed and no emission reductions would occur. Monitoring, recordkeeping and reporting would be the only costs. (See Tables 16 and 17 of this preamble.) We agree with the commenter that total organic HAP includes vinyl chloride and dioxins and furans, but we disagree that vinyl chloride standards should be eliminated, since vinyl chloride emissions limits already apply to PVC facilities under 40 CFR part 61, and they serve as a check on a unit's recovery process efficiency and since physical measurement of vinyl chloride from process vents occurs only every 5 years. In determining what constitutes GACT for this final rule, we considered the control technologies and management practices that are generally available to PVC area sources by examining relevant data and information, including information collected from PVC area sources. We also considered the control measures applicable to PVC major sources to determine if the control technologies and management practices are transferable and generally available to area sources. As part of the GACT determination, we considered the costs and economic impacts of available control technologies and management practices on area sources which are documented in the technical memorandum, *Generally Achievable Control Technology (GACT) Analysis for Area Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category, which is available in the docket.*

Under CAA section 112(d)(5), the EPA can promulgate standards or requirements for area sources ''which provide for the use of generally available control technologies or management practices [GACT] by such sources to reduce emissions of hazardous air pollutants.'' Additional information on GACT is found in the Senate report on the legislation (Senate Report Number 101–228, December 20, 1989), which describes GACT as:

> * * * methods, practices and techniques which are commercially available and appropriate for application by the sources in the category considering economic impacts and the technical capabilities of the firms to operate and maintain the emissions control systems.

Consistent with the legislative history, we can consider costs and economic impacts in determining GACT.

Determining what constitutes GACT involves considering the control technologies and management practices that are generally available to the area sources in the source category. We also consider the standards applicable to major sources in the analogous source category to determine if the control technologies and management practices are transferable and generally available to area sources. In appropriate circumstances, we may also consider technologies and practices at area and major sources in similar categories to determine whether such technologies and practices could be considered generally available for the area source categories at issue.

We determined new and existing area source standards for each emission point by evaluating the current (also referred to as baseline) level of control and control options beyond the current level of control.

For each emission point, we determined the current level of control for existing area sources, incorporating variability. If no area source currently exists in the category or subcategory, the least controlled major source, in each subcategory for each regulated pollutant, as applicable, was analyzed as the baseline level of control for GACT. The only two existing PVC area sources that we are aware of produce bulk resin and suspension resin, respectively. No existing area sources produce dispersion resin, suspension blending resin or copolymer resin. However, if an existing PVC major source is able to become a synthetic area source, *e.g.,* by taking a federally enforceable limit on its potential to emit, before the first compliance date of this rule, it would be subject to area source rather than major source PVC NESHAP requirements. Therefore, in order to develop GACT standards for other stripped resin subcategories, we determined the baseline level of control for these subcategories in which there is

emissions for which the category was listed under CAA section 112(c)(3).

no existing area source to be equivalent to that of the least controlled major source, *i.e.,* for the dispersion, suspension blending and copolymer subcategories for stripped resins. For the suspension blending and copolymer subcategories, there is only one major source. So for these subcategories of stripped resin, the level of control of the least controlled major source was the same as the major source MACT floor level of control. In addition, gasholders are the only emission source that are located at major sources, but not located at area sources. Therefore, we determined that the baseline level of control for gasholders is equivalent to that of the least controlled PVC major source with a small gasholder. We believe that all future possible existing area sources should be able to achieve these levels of control, as we predict that most, if not all, such sources will be major sources that limit their potential to emit to levels below the major source thresholds before the first substantive compliance date of this rule. See 42 U.S.C. 112(a)(1); 40 CFR 63.2 (definition of ''potential to emit''). For equipment leaks, heat exchange systems and storage vessels, we determined that the level of control was the same as the major source work practice standards.

We are also establishing new source GACT. We have data from the two existing area source facilities, and those facilities form the basis of our new source GACT analysis. For the PVC-combined process vents, PVC-only process vents, bulk resin and suspension resin subcategories, we have data from one area source facility. For the other emission points (except for dispersion resin, suspension blending resin and copolymer resin discussed in the previous paragraph) both facilities are equivalent in terms of their current level of control. For equipment leaks, the CertainTeed Lake Charles facility and the OxyVinyls Deer Park facility both comply with 40 CFR part 61, subpart V. Therefore, we find that the level of control for new area sources is equivalent to the level of control for existing area sources.

Control options beyond the current or baseline level of control for existing sources were analyzed on a basis of cost effectiveness. We determined the emission reductions, if any, associated with existing PVC area sources meeting levels of control more stringent than the current or baseline level of control. We then estimated the annual cost of testing, monitoring, recordkeeping and reporting, and any operating and maintenance costs associated with control devices required to meet the more stringent control levels. We developed a cost- effectiveness estimate by dividing the annual cost of the more stringent control level with the annual emission reduction. The control options analyzed are as follows:

For PVC-only and PVC-combined process vents at new and existing area sources, for each subcategory, we analyzed two additional control options beyond the current level of control. The first option was requiring the current level of control, as discussed above, and the testing and monitoring requirements for process vents at existing major sources. The same types of controls are used at both existing area and major sources. The testing and monitoring necessary to ensure compliance with the emission limits and to ensure proper operation of the control device are the same regardless of the size of the control device. The second option was requiring meeting the emission limits for existing major sources in addition to the testing and monitoring requirements for existing major sources.

For PVC-only process vents at new and existing area sources, we determined that the second option was not cost effective; instead, we concluded that the first option was appropriate. We determined that the major source testing and monitoring requirements are appropriate and necessary to ensure that area sources are in compliance with the process vent standards, whether those required standards are the current level of control or major source standards. Therefore, we are requiring PVC-only and PVC-combined process vents at new and existing area sources to comply with GACT by meeting the current level of control and the testing and monitoring requirements for existing major sources.

For stripped resins at new and existing PVC area sources, we analyzed two additional control options beyond the current or baseline level of control for each subcategory. The first option was requiring the current or baseline level of control and the testing and monitoring requirements for stripped resins at existing major sources. The second option was meeting the emission limits for existing major sources in addition to the testing and monitoring requirements for existing major sources. For the bulk and suspension resin subcategories, we are setting the stripped resin limits for new and existing area sources equivalent to their current level of control, accounting for variability, and testing and monitoring requirements for major sources for each stripped resin subcategory. For dispersion resins, GACT is based on the baseline level of control, i.e., the least controlled major source and limits were developed for dispersion resins based on data from that source. For the suspension blending and copolymer resin subcategories, we are requiring the emission limits for existing major sources since there was only one source in each of these subcategories (*i.e.,* the baseline level of control was the level of control the existing major source) in addition to the testing and monitoring requirements for existing major sources. Similar to process vents, we determined that it is appropriate to require testing and monitoring requirements for major sources to ensure compliance.

For process and maintenance wastewater at new and existing PVC area sources, we analyzed three additional control options beyond the current baseline. The first option was requiring the current level of control and the testing and monitoring requirements for wastewater at existing major sources. The second option was meeting the emission limits for existing major sources in addition to the testing and monitoring requirements for wastewater at existing major sources. The third option was meeting the emission limits for new major sources in addition to the testing and monitoring requirements for wastewater at existing major sources. We determined that the second option of emission limits for existing major sources was less stringent than (i.e., not beyond) the current baseline for new and existing area sources. We determined that the third option of emission limits for new major sources were not cost effective for new or existing PVC area sources. Therefore, we are requiring process and maintenance wastewater at new and existing area sources to comply with GACT by meeting the current baseline and the major source testing and monitoring requirements. Similar to process vents, we determined that it is appropriate to require testing and monitoring requirements for major sources and necessary to ensure that area sources are in compliance with the process and maintenance wastewater standards.

For equipment leaks and for heat exchangers at new and existing PVC area sources, we analyzed one additional control option beyond the current level of control. The additional option was meeting the emission standards for equipment leaks and for heat exchangers at existing major sources. We determined that the emission standards for equipment leaks and heat exchangers at existing major sources are cost effective for new and existing area sources. Therefore, we are requiring new and existing area sources to comply with GACT by meeting the

equipment leak and heat exchanger standards at existing major sources.

For storage tanks at new and existing PVC area sources, we analyzed one additional control option beyond the current baseline. The additional option was meeting the emission standards for storage tanks at existing major sources. We determined the emission standards for storage tanks at existing major sources are cost effective for new and existing area sources. Therefore, we are requiring new and existing area sources comply with GACT by meeting the emission standards for existing major sources.

For other emission sources, the current level of control is emission standards for reactor and other equipment openings equivalent to the requirements in 40 CFR part 61, subpart F, which is also equivalent to the major source level of control. We analyzed an additional option for gasholders equivalent to the emission standards for gasholders at major sources. The option was determined to be cost effective for new and existing area sources. Therefore, we are requiring that new and existing area sources comply with GACT by meeting the emission standards for gasholders and reactor openings at major sources.

Tables 16 and 17 present a summary of the control options analysis for new and existing area sources.

TABLE 16—SUMMARY OF CONTROL OPTION ANALYSIS FOR EXISTING AREA SOURCES

Emission point	Control option analyzed beyond current level of control	Incremental annual cost of compliance ($/yr)	Emission reductions (tpy—total HAP)	Cost effectiveness ($/ton total HAP)
PVC-only process vents	Major Source Testing and Monitoring	10,890	0	[a]
	Existing Major Source emission standards, monitoring and testing	180,245	0.257	701,814
PVC- combined process vents.	Major Source Testing and Monitoring	10,890	0	[a]
	Existing Major Source emission standards, monitoring and testing	10,890	0	[a]
Stripped resins (all subcategories).	Major Source Testing and Monitoring	10,615	0	[a]
	Existing Major Source emission standards, monitoring and testing	10,615	0	[a]
Process and maintenance wastewater.	Major Source Testing and Monitoring	19,777	0	[a]
	Existing Major Source emission standards, monitoring and testing	19,777	0	[a]
	New Major Source emission standards, monitoring and testing	2,996,390	12.2	245,516
Equipment leaks	Existing Major Source emission standards, monitoring and testing	72,525	9.29	7,807
Heat exchangers	Existing Major Source emission standards, monitoring and testing	25,529	15.1	1,691
Other emission sources	Existing Major Source emission standards, monitoring and testing	3,108	0	[b] $4,921
Storage tanks	Existing Major Source emission standards, monitoring and testing	3,108	0	[c] 2,000–12,000

[a] Option does not result in emission reductions; therefore, a cost effectiveness was not applicable.

[b] Emission reductions and costs were calculated for retrofitting a model small gasholder with floating objects to reduce emissions from the gasholder water seal. The results of the analysis showed that cost effectiveness was equal to $4,921 per ton of vinyl chloride reduced. We are not aware of any gasholders operated at existing PVC area sources; therefore no emission reductions are shown.

[c] Emissions reductions and costs were calculated for retrofitting 40 CFR part 63, subpart WW controls on model fixed roof tanks meeting 40 CFR part 60, subpart Kb vapor pressure and size parameters. The results of the analysis showed that cost effectiveness ranged from $2,000 to $12,000 per ton of HAP reduced by this option depending on the number of turnovers assumed. Based on information submitted by PVC production facilities, no storage vessels from affected sources that meet the capacity levels storing materials that meet the vapor pressure levels were identified. Therefore, it was assumed that no storage vessels meeting capacity levels storing materials that meet the vapor pressure levels would be constructed at a new source.

$/yr—dollars per year.

tpy—tons per year.

$/Ton Total HAP—dollars per ton of total HAP.

TABLE 17—SUMMARY OF CONTROL OPTION ANALYSIS FOR NEW AREA SOURCES

Emission point	Control option analyzed beyond current level of control	Incremental annual cost of compliance ($/yr)	Emission reductions (tpy—total HAP)	Cost effectiveness ($/ton total HAP)
PVC-only process vents	Major Source Testing and Monitoring	10,890	0	[a]
	Existing Major Source emission standards, monitoring and testing	180,245	0.257	701,814
PVC-combined process vents.	Major Source Testing and Monitoring	10,890	0	[a]
	Existing Major Source emission standards, monitoring and testing	10,890	0	[a]
Stripped resins (all subcategories).	Major Source Testing and Monitoring	10,615	0	[a]
	Existing Major Source emission standards, monitoring and testing	10,615	0	[a]
Process and maintenance wastewater.	Major Source Testing and Monitoring	9,888	0	[a]
	Existing Major Source emission standards, monitoring and testing	9,888	0	[a]
	New Major Source emission standards, monitoring and testing	1,988,368	8.91	223,169
Equipment leaks	Existing Major Source emission standards, monitoring and testing	36,263	4.64	7,807
Heat exchangers	Existing Major Source emission standards, monitoring and testing	12,764	11.4	1,117
Other emission sources	Existing Major Source emission standards, monitoring and testing	3,032	0.616	4,922

TABLE 17—SUMMARY OF CONTROL OPTION ANALYSIS FOR NEW AREA SOURCES—Continued

Emission point	Control option analyzed beyond current level of control	Incremental annual cost of compliance ($/yr)	Emission reductions (tpy—total HAP)	Cost effectiveness ($/ton total HAP)
Storage tanks	Existing Major Source emission standards, monitoring and testing	1,554	0	[b] 2,000–12,000

[a] Option does not result in emission reductions; therefore, a cost effectiveness was not applicable.
[b] Emissions reductions and costs were calculated for retrofitting 40 CFR part 63, subpart WW controls on model fixed roof tanks meeting 40 CFR part 60, subpart Kb vapor pressure and size parameters. The results of the analysis showed that cost effectiveness ranged from $2,000 to $12,000 per ton of HAP reduced by this option depending on the number of turnovers assumed. Based on information submitted by PVC production facilities, no storage vessels from affected sources that meet the capacity levels storing materials that meet the vapor pressure levels were identified. Therefore, it was assumed that no storage vessels meeting capacity levels storing materials that meet the vapor pressure levels would be constructed at a new source.
$/yr—dollars per year.
tpy—tons per year.
$/Ton Total HAP—dollars per ton of total HAP.

A detailed discussion of these options and the cost and impacts estimated for them is found in the memorandum, *Generally Achievable Control Technology (GACT) Analysis for Area Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* and is available in the docket. The results of the GACT analysis are presented in sections VI.A and VI.B of this preamble.

The summary of the area source requirements in the final rule is discussed in section IV.I of this preamble.

Comment: One commenter disagreed with the EPA's proposed equipment leak standards. The commenters stated that the EPA's estimates of baseline fugitive emissions are not valid and not representative of CertainTeed's actual measured fugitive emissions from equipment leaks, because EPA estimated the emissions from equipment leaks by applying average emission factors instead of relying on actual measured data. The commenter contended that because of these estimates, the EPA grossly overestimated the level of fugitive emission reductions. The commenter concluded that because of these overestimations, the cost of the proposed Equipment Leak GACT standards cannot be justified by the potential emission reductions.

Response: At proposal, we estimated baseline emissions and reductions for fugitive emissions from equipment leaks using the 1995 EPA *Protocol for Equipment Leak Emission Estimates.* We agree with the commenter that the 1995 factors yield conservatively high estimates of actual emissions. As part of the technology review required by section 112(d)(6) of the CAA, the EPA has developed new emission factors for equipment leaks that better represent fugitive emissions at chemical manufacturing processes and petroleum refineries. Emission factors were developed using facility data from the MON MACT floor development and the EPA Office of Air Quality and Planning Standards Protocol for Equipment Leak Emission Estimates. (Please refer to the memorandum in the docket titled *Technology Review for Equipment Leaks* for additional information regarding the development of new emission factors for equipment leaks.) Although the commenter provided annual fugitive emissions from equipment leaks for years 2007 through 2010, the commenter did not provide any equipment leak monitoring records, test reports or additional documentation supporting their emission estimates. Therefore, we have chosen to estimate fugitive emissions for both major and area sources using the updated emission factors for consistency across all PVCPU. Using updated emission factors and equipment counts provided by CertainTeed where available, we have updated the baseline emission estimate for fugitive HAP emissions from equipment leaks at the CertainTeed facility to 10 tpy. We have also updated our emissions reduction estimate to 4.64 tpy of HAP as a result of the facility complying with 40 CFR part 63, subpart UU.

We have also updated the total capital investment and total annualized costs of the CertainTeed facility complying with 40 CFR part 63, subpart UU and installing and operating a PRD monitoring system using equipment counts where provided by the facility. The analysis is documented in the memorandum titled *Generally Achievable Control Technology (GACT) Analysis for Area Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category* in the PVC docket. The total cost effectiveness is estimated to equal $6,840 dollars per ton of total HAP; therefore, we are finalizing the requirements for area sources to comply with subpart UU and install and operate a PRD monitoring system.

I. Definitions

The following definitions have been revised since the proposal: Batch process vent, conservation vent, continuous process vent, grade, in HAP service, operating scenario, polyvinyl chloride, PVC production process unit or PVCPU, polyvinyl chloride copolymer, pressure relief device, process vent, solution process, type of resin and wastewater.

We have revised the definition of *batch process vent* to provide consistency with our revisions to the definitions of continuous process vent and process vent and to clarify that batch process vents must be routed to a closed vent system and control device. We also clarify that all emission episodes associated with a batch unit operation are part of the batch process vent. We have also removed language from the definition that excluded certain types of vents or vents from certain components or equipment. In the final rule, *batch process vent* means a vent from a batch operation from a PVCPU through which a HAP-containing gas stream has the potential to be released to the atmosphere except that it is required by this subpart to routed to a closed vent system and control device. Emissions for all emission episodes associated with the unit operation(s) are part of the batch process vent. Batch process vents also include vents with intermittent flow from continuous operations. Examples of batch process vents include, but are not limited to, vents on condensers used for product recovery, polymerization reactors and process tanks.

We have revised the definition of *conservation vent* to provide additional clarification. In the final rule, *conservation vent* means an automatically operated (*e.g.,* weight-loaded or spring-loaded) safety device used to prevent the operating pressure of a storage vessel from exceeding the maximum allowable working pressure of the process component. Conservation vents must be designed to open only when the operating pressure of the storage vessel exceeds the maximum allowable working pressure of the process component. Conservation vents open and close to permit only the intake or outlet relief necessary to keep the storage vessel within permissible working pressures, and reseal automatically.

We have revised the definition of *continuous process vent* to provide consistency with our revisions to the definitions of batch process vent and process vent. We also clarify that continuous process vents must be routed to a closed vent system and control device. In the final rule, *continuous process vent* means a vent from a continuous PVCPU operation through which a HAP-containing gas stream has the potential to be released to the atmosphere, except that it is required by this subpart to routed to a closed vent system and control device and has the following characteristics:

(1) The gas stream originates as a continuous flow from any continuous PVCPU operation during operation of the PVCPU.

(2) The discharge into the closed vent system and control device meets at least one of the following conditions:

(i) Is directly from any continuous operation.

(ii) Is from any continuous operation after passing solely (*i.e.,* without passing through any other unit operation for a process purpose) through one or more recovery devices within the PVCPU.

(iii) Is from a device recovering only mechanical energy from a gas stream that comes either directly from any continuous operation or from any continuous operation after passing solely (*i.e.,* without passing through any other unit operation for a process purpose) through one or more recovery devices within the PVCPU.

We have revised the definition of *grade* to specify resin ''type'' instead of resin ''classification'' since resins are first classified by type, and types are further subdivided into grades. We have also provided an example of a resin grade. In the final rule, *grade* means the subdivision of PVC resin that describes it as a unique resin, *i.e.,* the most exact description of a type of resin with no further subdivision. Examples include LMW suspension resins and general purpose suspension resins.

We have revised the definition of *in HAP service.* In the final rule, *in HAP service* means that a process component either contains or contacts a liquid that is at least 5-percent HAP by weight or a gas that is at least 5 percent by volume HAP, as determined according to the provisions of 40 CFR 63.180(d). For the purposes of this definition, the term ''in organic HAP service,'' as used in 40 CFR 63.180(d), means ''in HAP service.'' The provisions of 40 CFR 63.180(d) also specify how to determine that a process component is not in HAP service.

We have revised the definition of *polyvinyl chloride* to clarify that it includes homopolymers and copolymers. In the final rule, *polyvinyl chloride* means either polyvinyl chloride homopolymer or polyvinyl chloride copolymer.

We have revised the definition of *polyvinyl chloride and copolymers production process unit or (PVCPU)* to remove components that are storage tanks or vessels, heat exchange systems, wastewater and wastewater collection and treatment systems, and add instrumentation systems. Multiple PVCPU may be located at the same affected source and share storage tanks, heat exchange systems and process wastewater treatment systems. Therefore this shared equipment has been removed from the definition of a PVCPU and is now included in the definition of the affected source instead of the PVCPU. In the final rule, *polyvinyl chloride and copolymers production process unit or (PVCPU)* means a collection of process components assembled and connected by hard-piping or duct work, used to process raw materials and to manufacture polyvinyl chloride and/or polyvinyl chloride copolymers. A PVCPU includes, but is not limited to, polymerization reactors; resin stripping operations; resin blend tanks; resin centrifuges; resin dryers; resin product separators; recovery devices; reactant and raw material charge vessels and tanks, holding tanks, mixing and weighing tanks; finished resin product storage tanks or storage silos; finished resin product loading operations; connected ducts and piping; equipment including pumps, compressors, agitators, PRD, sampling connection systems, open-ended valves or lines, valves and connectors and instrumentation systems. A PVCPU does not include chemical manufacturing process units, as defined in 40 CFR 63.101, that produce VCM or other raw materials used in the PVC polymerization process.

We have revised the definition of *polyvinyl chloride copolymer* to clarify that polyvinyl chloride copolymers can also be produced using a suspension blending process. In the final rule, *polyvinyl chloride copolymer* means a synthetic thermoplastic polymer that is derived from the simultaneous polymerization of vinyl chloride and another monomer, such as vinyl acetate. Polyvinyl chloride copolymer is produced by different processes, including, but not limited to, suspension, dispersion/emulsion, suspension blending and solution processes.

We have revised the definition of *pressure relief device* to remove the condition that devices actuated either by a pressure of less than or equal to 2.5 pounds per square inch gauge or by a vacuum are not PRD. In the final rule, *pressure relief device* means a safety device used to prevent operating pressures from exceeding the maximum allowable working pressure of the process component. A common PRD is a spring-loaded pressure relief valve.

We have revised the definition of *process vent* to provide consistency with our revised definitions of batch process vent and continuous process vent and miscellaneous vent. In the final rule, *process vent* means a vent stream that is the result of the manifolding of each and all batch process vent, continuous process vent or miscellaneous vent resulting from the affected facility into a closed vent system and into a common header that is routed to a control device. The process vent standards apply at the outlet of the control device. A process vent is either a PVC-only process vent or a PVC-combined process vent.

We have revised the definition of *solution processes* to specify that the process produces a polyvinyl chloride copolymer instead of only a polyvinyl chloride resin. In the final rule, *solution process* means a process for producing polyvinyl chloride copolymer resin that is characterized by the anhydrous formation of the polymer through precipitation. Polymerization occurs in an organic solvent in the presence of an initiator where VCM and co-monomers are soluble in the solvent, but the polymer is not. The PVC copolymer is a granule suspended in the solvent, which then precipitates out of solution. Emulsifiers and suspending agents are not used in the solution process. Copolymer resins produced using the solution process are referred to as solution resins.

At proposal, we defined a surge control vessel as part of any continuous operation. However, based on industry comments, gasholders meet the definition of a surge control vessel although gasholders may receive and introduce material into batch processes in addition to continuous processes. Therefore, we have modified the definition of a surge control vessel to reflect the definition in 40 CFR part 63, subpart H and remove the specification that surge control vessels must be used as part of a continuous operation and introduce material into continuous operations. We have, however, modified the definition from 40 CFR part 63, subpart H, to specify that surge control vessels are used within an affected source (and not solely a process unit) since PVCPU may share gasholders. In the final rule, *surge control vessel* means feed drums, recycle drums and intermediate vessels used as a part of any continuous operation. Surge control vessels are used within an affected source when in-process storage, mixing or management of flow rates or volumes is needed to introduce material into continuous operations. Surge control vessels also include gasholders.

We have revised the definition of *type of resin* to include additional resin types identified by commenters after proposal, specifically blending types of resin. In the final rule, *type of resin* means the broad classification of resin referring to the basic manufacturing process for producing that resin, including, but not limited to, suspension, dispersion/emulsion, suspension blending, bulk and solution processes.

We have revised the definition of *wastewater* to mirror definitions in other chemical sector rules, such as the HON, for consistency as several facilities are currently subject to multiple wastewater provisions. We have also specified what is not considered wastewater. In the final rule, *wastewater* means process wastewater and maintenance wastewater. The following are not considered wastewater for the purposes of this subpart:

(1) Stormwater from segregated sewers;

(2) Water from fire-fighting and deluge systems, including testing of such systems;

(3) Spills;

(4) Water from safety showers;

(5) Samples of a size not greater than reasonably necessary for the method of analysis that is used;

(6) Equipment leaks;

(7) Wastewater drips from procedures such as disconnecting hoses after cleaning lines; and

(8) Noncontact cooling water.

The following definitions have been added to the final rule: *gasholder, hard-piping, heat exchanger exit line, maintenance wastewater, miscellaneous vent, polyvinyl chloride homopolymer, process wastewater, process wastewater treatment system, PVC-combined process vent, PVC-only process vent, suspension blending process, table 10 HAP, total non-vinyl chloride organic HAP* and *wastewater stream.*

We have added a definition for *polyvinyl chloride homopolymers* to distinguish between homopolymers and copolymers. During the comment period, industry provided additional resin data distinguishing homopolymers and copolymers and is based largely on the proposed definition for polyvinyl chloride. For reasons discussion in section V.D of this preamble, we have set limits for five subcategories of resin, including copolymers. Therefore, the new definitions are necessary to distinguish between homopolymers and copolymers. The definitions are based on the information provided in comments. In the final rule, *polyvinyl chloride homopolymer* means a synthetic thermoplastic polymer that is derived from the polymerization of vinyl chloride and has the general chemical structure $(-H_2CCHCl-)_n$. Polyvinyl chloride homopolymer is typically a white powder or colorless granule. Polyvinyl chloride homopolymers are produced by different processes, including (but not limited to) suspension, dispersion/emulsion, blending and bulk processes.

At proposal, we did not set separate limits for suspension blending resins. During the comment period, industry provided additional resin data regarding suspension blending resins. As described in section V.D of this preamble, we have set limits for five types of resin, including suspension blending. Therefore, a definition to distinguish suspension blending resins from other resin types is necessary. The definition is based on the information provided in comments. In the final rule, *suspension blending process* means a process for producing polyvinyl chloride resin that is similar to the suspension polymerization process, but employs a rate of agitation that is significantly higher than the highest range for non-blending suspension resins. The suspension blending process uses a recipe that creates extremely small resin particles, generally equal to or less than 100 microns in size, with a glassy surface and very little porosity. The suspension blending process concentrates the resins using a centrifuge that is specifically designed to handle these small particles. Polyvinyl chloride resins produced using the suspension blending process are referred to as blending resins and are typically blended with dispersion resins.

At proposal, we did not subcategorize process vents. For the final rule, we are subcategorizing process vents into PVC-only and PVC-combined vents for reasons discussed in section V.D of this preamble. Therefore, it is necessary to distinguish between the two process vent subcategories. In the final rule, *PVC-only process vent* means a process vent that originates from a PVCPU and is not combined with a process vent originating from another source category prior to being controlled or emitted to the atmosphere. In the final rule, *PVC-combined process vent* means a process vent that originates from a PVCPU and is combined with one or more process vents originating from another source category prior to being controlled or emitted to the atmosphere.

At proposal, we did not have information on gasholders and did not propose standards for them. Following proposal, industry provided comment on control options and cost information for gasholders and we have included requirements for gasholders in the final rule. Therefore it was necessary to add a definition for gasholders to the final rule. The definition is based on information provided in comments. In the final rule, *gasholder* means a surge control vessel with a bell that is floating in a vessel filled with water and is used to store gases from the PVC production process prior to being recovered or sent to a process vent control device. The bell rises and lowers as low-pressure gases enter and leave the space beneath the bell and the water provides a seal between the enclosed gas within the floating bell and the ambient air.

At proposal, we did not define *maintenance wastewater,* but instead, required that all wastewater be subject to the same proposed provisions. We received comments from industry contending that quantifying a concentration to establish compliance for maintenance wastewater would be extremely difficult if not impossible because maintenance activities are highly variable. Industry also noted that HAP are minimized in maintenance wastewater by requiring that components meet applicable opening standards before the introduction of water for cleaning. The final rule includes provisions that address process and maintenance wastewater separately; therefore, we have added definitions for *maintenance wastewater* and *process wastewater* to the final rule. The definitions are based on those provided

in the HON, because the wastewater streams are similar and, in some cases, they are co-located. In the final rule, *maintenance wastewater* means wastewater generated by the draining of process fluid from components in the PVCPU 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, hydroblasting PVCPU process components such as polymerization reactors, vessels and heat exchangers, draining of low legs and high point bleeds, draining of pumps into an individual drain system, draining of portions of the PVCPU for repair and water used to wash out process components or equipment after the process components or equipment has already been opened to the atmosphere and has met the requirements of 40 CFR 63.11955. In the final rule, *process wastewater* means water that comes into direct contact with HAP or results from the production or use of any raw material, intermediate product, finished product, by-product or waste product containing HAP, but that has not been discharged untreated as wastewater. 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; water discarded from a control device; and condensed steam from jet ejector systems pulling vacuum on vessels containing organics. Gasholder seal water is not process wastewater until it is removed from the gasholder.

In the final rule, *wastewater stream* means a stream that contains only wastewater as defined in this section.

Also in the final rule, *table 10 HAP* means a HAP compound listed in table 10 of final rule. *Total non-vinyl chloride organic HAP* means, for the purposes of this subpart, the sum of the measured concentrations of each table 10 compound as calculated according to the procedures specified in 40 CFR 63.11960(e) and 40 CFR 63.11980(b).

J. Cost and Emission Impacts

Comment: Three commenters expressed concern that costs for PRD are greatly underestimated. One commenter estimated that retrofitting existing PRD with release indicators will cost $5,000 per PRD. The commenter stated that these costs include the actual measurement device itself, installation labor, wiring back to the control room, input/output cards in distributed control system (DCS) and initial configuration (programming) of the DCS for alarms, logging, etc. The commenter stated that with two facilities each containing over 100 PRD the total cost would be over $1,000,000 to retrofit. Another commenter also cited an estimate of $5,000 if a wireless pressure monitoring device is used, or $10,000 per PRD if a more substantial flow monitoring device is needed. The commenter estimated the cost for its three facilities with 393 total PRD would range from $1,965,000 to $3,930,000 to retrofit. A third commenter estimated a cost of $10,000 to retrofit each PRD, accounting for installation and integration into the process control system. With approximately 200 PRD at a facility, the commenter estimated a total cost of $2,000,000. One commenter also noted that if the EPA is requesting pressure switches between the rupture discs and the safety valves, this is ''relatively'' easy to accomplish because it would require the instrument, communication wiring, and a small amount of piping. This commenter also requested that the EPA make it clearer whether flow indication or pressure indication is required in the proposed rule. Additionally, one commenter stated that multiple systems for release indication already exist within PVC operations.

One commenter expressed concern about bypass flow indicator costs. The commenter stated that a conservative estimate to install bypass flow indicators is similar to that for flow indication on PRD, approximately $5,000 per open ended line. Considering there are hundreds of such lines, the commenter indicated that installation cost could exceed $1,000,000 per facility.

Response: The EPA maintains that the capital cost estimate of $188,900 and annual cost estimate of $26,900 per facility is appropriate. Although commenters provided cost estimates for particular facilities, costs provided in the comment letters were general in nature, and the commenters did not provide documentation or detailed cost analyses such that the provided estimates could be reviewed. Therefore, we must estimate costs for all facilities using a consistent methodology which is based on data collected by the EPA. We developed our cost estimate for electronic PRD monitoring systems using the *Proposed Amended Rule 1173—Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants,* from the South Coast Air Quality Management District. Other commenters have stated that most PVC plants ''typically have rupture discs installed below relief valves that discharge to the atmosphere, and monitor the space between the rupture disc and the PRD for leaks on a routine basis using a local pressure indicator and log this information for safety purposes.'' The EPA maintains that a facility must use a monitor to indicate an emission release to the atmosphere; the type of indicator is left to the facility.

Comment: Several commenters took issue with the cost estimates related to resin stripping. The commenters stated that current technology will not allow facilities to meet the resin limits and indicated that it will be necessary to develop new technology and the associated costs will be much greater than the current EPA stripped resin cost estimate. One commenter stated that millions of dollars will be required to develop the technology and install equipment. Commenters contended that improvements in PVC resin stripping beyond that which can be achieved to meet new MACT floor HAP concentrations are not feasible due to thermal degradation of PVC resins with elevated heat histories (combination of higher temperatures and residence times). One commenter added that steam is one of many components in the resin stripping process, but it cannot be used as the sole or primary control technique without seriously degrading the resin product. Commenters indicated that some types and grades of resin are sensitive to heat history such as that incurred by steam stripping and that color and heat stability can be negatively impacted by excess heat history. Several commenters disagreed with the EPA's conclusion that PVCPU would only need to use additional steam in existing equipment to strip resin to comply with the proposed vinyl chloride and total HAP emission limits. Commenters also indicated that the effectiveness of certain types of stripping technologies is not increased by the addition of steam above energy balance requirements. Another commenter added that PVC resins, some types and grades more than others, are sensitive to heat such as that incurred by steam stripping. One commenter stated that the EPA offered no substantiation for the claim that more steam in existing equipment would provide for anything more than negligible reductions in vinyl chloride and HAP levels in stripped resin. The commenter added that two of the major

licensors of PVC resin stripping technology have said they would not guarantee new equipment, let alone existing equipment, could meet the proposed limit of 0.48 ppmw of vinyl chloride for all resins. Commenters indicated that for some PVC grades, a significant column retrofit or replacement would be necessary to meet more stringent resin limits.

Response: For the final rule, we revised the methodology used to estimate cost impacts for stripped resin based on the comments and additional cost data provided by commenters. For the proposed rule, costs of affected sources meeting the proposed concentration standards for stripped resins were estimated by calculating the amount of additional steam required to strip vinyl chloride and total HAP to the proposed concentration standards. Based on comments and information provided by commenters, we agree that costing additional steam may not be the appropriate control technique to meet the stripped resin limits. For the final rule, we estimated costs of affected sources demonstrating compliance with the final stripped resin concentration standards by calculating the cost of installing a new resin stripper, based on information provided by commenters. We did not include annual costs other than the amortized capital investment since affected sources must currently pay for the operation and maintenance of their current resin strippers. Additionally, we have revised MACT floor calculations, as discussed in section V.E.2 of this preamble. The revised MACT floor and impacts analyses show that one facility will not be able to meet the final limits. Based on information received during the public comment period, we estimate the one facility not able to meet the final limits will be required to install a new resin stripper with a total capital cost of $10 million and a total incremental annual cost of $944,000 per year.

Comment: Several commenters expressed concern with the costs imposed by wastewater compliance requirements. One commenter contended that requiring monthly sampling for HAP in wastewater will impose undue hardship on facilities when they are required to perform continuous monitoring of stripper operating levels as well. This commenter estimated an additional $65,000 per year from the monthly sampling. Another commenter stated that due to the low wastewater vinyl chloride limit, the cost for controls will be much higher. The commenter added that simply adding steam will be insufficient and that it will be necessary to replace the stripper at a cost of $3,400,000 with annual operating costs of $636,000. One commenter recommended that the HAP control requirements (testing, sampling, etc.) should be removed from the wastewater rule since no emission benefit is achieved.

Response: Similar to our decision for stripped resins in the final rule, we have removed all requirements for continuous parametric monitoring of wastewater strippers. The requirements to conduct periodic sampling for vinyl chloride and total non-vinyl chloride organic HAP are sufficient to assure compliance with the stripped resin limits. We have also established a revised limit for total non-vinyl chloride organic HAP from process wastewater. Monthly sampling and analysis for total non-vinyl chloride organic HAP is necessary to ensure that the limits are being met on a continuous basis. We have also substantially reduced the burden on facilities by only requiring re-analysis of untreated streams once per year to ensure that those streams are below the process wastewater limits and that they do not require treatment. These changes have significantly reduced the burden of the final rule.

K. Economic Impacts

Comment: Several commenters expressed concern with the economic ramifications of the proposed rule to PVC producers and consumers. The commenters stated that the EPA did not adequately quantify the effect to the entire PVC supply chain when considering the rule and that as a result many hardships and changes will occur. Commenters contended that impacts will be cascaded down the supply chain and increase cost of doing business. One commenter encouraged the agency to review and carefully consider these impacts in light of the Obama Administration's Executive Order 13563, *Improving Regulation and Regulatory Review*, which calls for review and revision of regulations that stifle job creation and economic growth.

Commenters argued the PVC MACT will impact a company's competitiveness in the global market, where overseas PVC producers are not subject to such stringent regulations. One commenter expressed concern with the impact on construction of new plants; the proposed PVC rule will pose a significant deterrent to any company that considers citing new or reconstructed PVC manufacturing in the United States causing additional harm to the economy. Several commenters expressed concern that if enacted without significant revision, the PVC rule will result in the closure of several plants in the United States.

One commenter representing the chlor-alkali industry provided an example of how the PVC rule will impact related industries. The commenter stated that as currently proposed compliance by United States PVC manufacturing facilities with the MACT will cause a 4-percent–8-percent reduction in demand in the domestic chlorine market. Based on average industry pending patterns and labor-output ratios, in total, between 3,300 and 6,600 jobs are at risk.

Commenters expressed concern regarding the economic impacts to several industries, including: the wall covering industry, the vinyl flooring industry, resilient flooring operations, pipe applications and the vinyl siding products industry.

Several commenters contended that the PVC rule would result in loss of performance characteristics and cost increases due to discontinuation and substitution of a different quality or type of resin for a previously formulated material, engineering changes, such as retooling or the necessary investment in new or replacement equipment due to the different types or qualities of resin and different formulations, and loss of time as new formulations may take years to develop and refine for their intended application. The commenters contended that over 100 types and grades of PVC resins will be affected, resulting in significant impact on how compounders, converters and fabricators operate, potentially changing product performance or raising costs. Other Two commenters stated that the net cost to consumers in the United States and Canada for the substitution of alternative materials for the PVC-based products that they currently use would be almost $17.7 billion dollars per year, plus an additional $5.6 billion in new investment to manufacture the incremental volume of substitute material and an associated $2.8 billion per year in capital recovery charges (details for numbers are in the document, *The Economic Benefits of Polyvinyl Chloride in the United States and Canada*, released by the American Chemistry Council and The Vinyl Institute in 2008). Several commenters expressed concern that imposing overly stringent requirements on PVC resin manufacturers will significantly increase imports from foreign sources and result in less domestic competition.

Response: The final rule contains several revisions that reduce the annual cost of the final rules by more than 75 percent from proposal ($19.7 million per year at proposal to $4.1 million per

year for the final rules, for major and area sources combined). These revisions are discussed in section VI of this preamble. For the reasons described above, we have revised subcategories and the MACT floor calculation for stripped resins resulting in revised limits for stripped resins. These changes result in stripped resin limits that are achievable by 15 out of 16 sources without installation of additional controls. Based on information received during the public comment period, the EPA estimates the one facility not able to meet the final stripped resin limits for major sources will be required to install a new resin stripper with a total capital cost of $10 million and an incremental annual cost of $944,000 per year. As a result, the final rule does not impose a significant burden on the source category as a whole. The commenters also did not supply any data or analysis to justify their assertions regarding potential plant closures, negative employment impacts, reduction in demand for chlorine, negative effects on the PVC supply chain, possible increases in imports or other economic harm.

Comment: One commenter expressed concern with the lack of consideration given to small businesses. The commenter stated that the EPA's Economic Impact Analysis identified only eight companies affected by the proposed rule. The commenter added that because all eight of these companies have more than 1,500 employees and annual revenues above $2 billion, the EPA certified the proposed rule and declared no significant economic impact on a substantial number of small entities. As such, no regulatory flexibility analysis was prepared by the agency. However, the commenter contended, the EPA did not host any ''SBREFA panels'' prior to reaching this conclusion, preventing the small business community from providing relevant input on the proposed rule's impacts. The commenter stated that there will be higher costs due to the PVC MACT which could be passed along the supply chain in the form of higher prices to customers, many of whom may be small businesses and less able to absorb regulation-induced price increases. The commenter concluded that the EPA should amend its analysis to investigate the secondary effect of the regulation on small businesses down the supply chain.

Response: The analysis of impacts on small entities called for by the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA), is to cover small entities directly affected by a rule. The RFA does not require indirect or secondary impacts to be included in a small entity analysis. This is consistent with the EPA's interpretation of the RFA as amended by SBREFA. Only rules that will have a direct significant adverse economic impact on a substantial number of small entities that are subject to the rule require an Initial Regulatory Flexibility Analysis or Final Regulatory Flexibility Analysis (see 5 U.S.C. sections 603–605).

L. Affirmative Defense

Comment: Several commenters opposed the EPA's affirmative defense requirements. One commenter contended it is unlawful and arbitrary because, although the EPA has eliminated its compliance exemption for periods of startup, shutdown and malfunction, the agency's final rule includes an ''affirmative defense to penalties that purports to bar courts from imposing any penalties on sources that violate their emission standards during a malfunction and satisfy certain agency created conditions related to preventing malfunctions and controlling malfunction emissions.'' This commenter contended that in this proposal, the EPA acts outside of its delegated authority to limit civil penalties available in citizen suits or its own enforcement actions, and the proposal will impermissibly chill citizen participation and the ability to win an effective, deterrent remedy in CAA enforcement actions. The commenter added that the affirmative defense would likely be used on a routine basis by polluters seeking to avoid penalties, imposing a technical burden on citizens seeking civil penalties against polluters.

Another commenter opposed incorporating affirmative defense penalties into regulations. The commenter stated that the EPA has discretion to decide what cases to prosecute, to consider settlements and to request civil penalties in a case-by-case manner, as long as it acts consistent with the CAA to protect clean air as its top priority and, thus, the commenter believes that promulgating this affirmative defense will allow polluters to claim that any violation of the standard is due to a malfunction in order to evade the requirements.

Another commenter requested that if affirmative defense is promulgated, the EPA specify the amount of compensatory damages should apply to each malfunction, modify the rule so that affirmative defense cannot be used by a specific facility or company more than once within a set period of time, and require public reporting of malfunctions or emissions exceedances.

Response: The EPA included an affirmative defense in the final rule in an attempt to balance a tension inherent in many types of air regulation to ensure adequate compliance, while simultaneously recognizing that despite the most diligent of efforts, emission limits may be exceeded under circumstances beyond the control of the source. The EPA must establish emission standards that ''limit the quantity, rate, or concentration of emissions of air pollutants on a continuous basis.'' 42 U.S.C. 7602(k) (defining ''emission limitation and emission standard''). See generally *Sierra Club* v. *EPA*, 551 F.3d 1019, 1021 (D.C. Cir. 2008). Thus, the EPA is required to ensure that CAA section 112 emissions limitations are continuous. The affirmative defense for malfunction events meets this requirement by ensuring that even where there is a malfunction, the emission limitation is still enforceable through injunctive relief. While ''continuous'' limitations, on the one hand, are required, there is also caselaw indicating that in many situations it is appropriate for the EPA to account for the practical realities of technology. For example, in *Essex Chemical* v. *Ruckelshaus*, 486 F.2d 427, 433 (D.C. Cir. 1973), the District of Columbia Circuit acknowledged that in setting standards under CAA section 111, ''variant provisions,'' such as provisions allowing for upsets during startup, shutdown and equipment malfunction ''appear necessary to preserve the reasonableness of the standards as a whole and that the record does not support the 'never to be exceeded' standard currently in force.'' See also, *Portland Cement Association* v. *Ruckelshaus*, 486 F.2d 375 (D.C. Cir. 1973). Though intervening caselaw such as *Sierra Club* v. *EPA* and the CAA 1977 amendments calls into question the relevance of these cases today, they support the EPA's view that a system that incorporates some level of flexibility is reasonable. The affirmative defense simply provides for a defense to civil penalties for excess emissions that are proven to be beyond the control of the source. By incorporating an affirmative defense, the EPA has formalized its approach to upset events. In a Clean Water Act setting, the Ninth Circuit required this type of formalized approach when regulating ''upsets beyond the control of the permit holder.'' *Marathon Oil Co.* v. *EPA*, 564 F.2d 1253, 1272–73 (9th Cir. 1977). But, see, *Weyerhaeuser Co.* v. *Costle*, 590

F.2d 1011, 1057–58 (D.C. Cir. 1978) (holding that an informal approach is adequate). The affirmative defense provisions give the EPA the flexibility to both ensure that its emission limitations are ''continuous,'' as required by 42 U.S.C. 7602(k), and account for unplanned upsets and, thus, support the reasonableness of the standard as a whole. The EPA is not adopting commenters' suggestion with respect to compensatory damages or limits on the frequency of use of the affirmative defense. It is not clear that EPA has authority to require the automatic imposition of compensatory damages and even if such authority exists, the EPA does not think automatic imposition of damages is appropriate. Ensuring that malfunctions do not recur can be handled through imposition of appropriate injunctive relief. In addition, the EPA's view is that it would not be appropriate to limit a source's ability to take advantage of the affirmative defense to one time over a specified period of time, such as 10 years, given that the affirmative defense is only available when the source could not have prevented the excess emissions. With respect to commenters' suggested reporting requirements, the reporting requirements in the rule promulgated here already require malfunction reporting and the affirmative defense provisions require that parties choosing to assert the affirmative defense meet additional malfunction reporting requirements. Any such reports submitted to the EPA are publicly available pursuant to CAA section 114.

M. Beyond-the-Floor Analyses

At proposal, we determined that the control technologies that would be needed to achieve the proposed MACT floor levels for process vents are generally the most effective controls available for reducing vinyl chloride, HCl, THC and CDD/CDF and we estimated the costs for those technologies for facilities that did not meet the proposed limits for process vents. Furthermore, at proposal, we did not identify any beyond-the-floor options for process vents. For the final rule, as a beyond-the-floor option for process vents (*i.e.,* PVC-only and PVC-combined process vents), we assessed the costs and emission reductions for existing major source facilities to meet the new source limits for both process vent subcategories by using enhanced vinyl chloride recovery (via an upgraded refrigerated condenser). Based on the resulting analysis of the cost effectiveness, we determined it is not appropriate to go beyond-the-floor for either subcategory of process vents at existing sources. This analysis is discussed in the memorandum, *Revised Beyond-the-Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category*.

For stripped resin at existing and new major sources, we analyzed the same beyond-the-floor option as at proposal, and determined it was not appropriate to go beyond-the-floor for stripped resin at existing and new major sources considering the cost and emission reductions of this option.

For equipment leaks, we analyzed a beyond-the-floor option at existing sources of complying with 40 CFR part 63, subpart UU level 2, instead of the MACT floor level of control, compliance with 40 CFR part 61, subpart V. Based on the results of the analysis, which are presented in Tables 16 and 18 of this preamble, we determined that it is appropriate that MACT for equipment leaks at existing and new major sources require compliance with subpart UU level 2, considering the cost and emission reductions of this option. The MACT floor level of control for new sources, compliance with subpart UU level 2, was identified as the most effective control of emissions from equipment leaks. Therefore, no beyond-the-floor HAP emission reduction approaches were identified for equipment leaks at new major sources. This analysis is discussed in sections VI.A and VI.B of this preamble and in the memorandum, *Revised Beyond-the-Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category*.

For heat exchange systems, we determined that the final leak action level and monitoring interval are generally the most effective LDAR program to control emissions from heat exchange systems. Therefore, no beyond-the-floor options were identified for heat exchange systems at existing or new major sources.

At proposal and for the final rule, we determined it is appropriate for storage vessels at existing and new major sources meeting specific vapor pressure and storage capacity parameters specified in 40 CFR part 60, subpart Kb to comply with the control requirements of 40 CFR part 63, subpart WW as a beyond-the-floor control considering cost and emission reductions. This analysis is discussed in sections VI.A and VI.B of this preamble and in the memorandum, *Revised Beyond-the-Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category.*

At proposal, we analyzed a beyond-the-floor option for wastewater of treating streams with HAP concentration greater than 1,000 ppmw (of 40 CFR part 63, subpart G, Table 9 HAP), and annual average flow rates greater than 10 liters per minute. In the final rule, we determined the MACT floor level of control for wastewater to includes concentration limits for total non-vinyl chloride organic HAP. Consequently, we analyzed a different beyond-the-floor options for wastewater, requiring all currently uncontrolled process wastewater (*e.g.,* wastewater from scrubbers and heat exchange systems) to be conveyed to, and treated by, a wastewater stripping unit. Based on the results of this analysis, we determined it is not appropriate to go beyond-the-floor for wastewater at existing and new major sources considering the cost and emission reductions of this option. This analysis is discussed in the memorandum, *Revised Beyond-the-Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category*.

At proposal, we did not identify any beyond-the-floor options for gasholders; however, we did solicit comments on control options for gasholders. Based on the information provided in comments, for the final rule, we analyzed a beyond-the-floor option of minimizing fugitive emissions by requiring the use of floating objects on the surface of the water seal at existing and new sources. Based on the results of the analysis, which are presented in Tables 16 and 18 of this preamble, we determined that it is appropriate to require gasholders at existing and new major sources reduce their fugitive emissions by using floating objects on the surface of the water seal as a beyond-the-floor control, considering cost and emission reductions. This analysis is discussed in the memorandum, *Revised Beyond-the-Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category*.

VI. Impacts of the Final PVC Rules

The impacts presented in this section include the impacts for PVC production facilities to comply with the final rules, and with the requirements of other subparts referenced by the final rules.

A. What are the air impacts?

We have estimated the potential emission reductions that are expected to be realized through implementation of the final rules. Table 18 of this preamble summarizes the emission reductions estimated for existing major sources. The table shows the emission reductions for each pollutant and emission point. Table 18 of this preamble also summarizes the emission

reductions for the beyond-the-floor options selected for existing major sources (*i.e.,* control of equipment leaks, storage vessels and gasholders). The major source analysis is documented in the memorandum, *Revised Costs and Emission Reductions for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category*. Table 19 of this preamble summarizes the emission reductions estimated for existing area sources complying with GACT. The area source analysis is documented in the memorandum, *Generally Achievable Control Technology (GACT) Analysis for Area Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category*. Both memoranda are available in the docket. We do not project any new major or area sources to be constructed in the 5 years following promulgation of the final rules; no emission reductions were calculated for new sources. The memoranda document emission reductions associated with model major and area sources complying with the new source requirements.

TABLE 18—EMISSION REDUCTIONS OF THE FINAL PVC AND COPOLYMERS PRODUCTION STANDARDS FOR MAJOR SOURCES

Emission point	Pollutant emission reductions (tpy)			
	Vinyl chloride	Total HAP	CDD/CDF (TEQ)	HCl
Major sources MACT floor				
Process vents [a]	0.102	1.93	0.017 g/yr	21.4
Stripped resins	7.58	7.58	0	0
Wastewater	0	0	0	0
Equipment leaks	0	0	0	0
Storage vessels	0	0	0	0
Other emission sources	0	0	0	0
Heat exchange systems	101	101	0	0
Major sources beyond the floor				
Equipment leaks	0	85.0	0	0
Storage vessels	0	0	0	0
Other emission sources-gasholders	22.0	22.0	0	0
Major Source total	130	217	0.017 g/yr	21.4

[a] Emission reductions for process vents are stated as total organic HAP; this value does not include HCl or chlorine reductions.

TABLE 19—EMISSION REDUCTIONS OF THE FINAL PVC AND COPOLYMERS PRODUCTION STANDARDS FOR AREA SOURCES

Emission point	Vinyl chloride (tpy)	Dioxin/furan (g/yr)	Total HAP (tpy)
Process vents	0	0	0
Heat exchange systems	15.1	0	15.1
Stripped resins	0	0	0
Wastewater	0	0	0
Equipment leaks	0	0	9.29
Other emission sources	0	0	0

We estimated emission reductions of the final rule for each emission point. For all emission points, we first calculated emissions at the current level of control for each facility (referred to as the baseline level of control), and at the MACT level of control selected for major sources and the GACT level of control selected for area sources. We calculated emission reductions as the difference between the final level and baseline.

Major Sources

For process vents at major sources, we calculated baseline emissions from the measured HAP concentrations at the outlet of the control devices, and HAP emissions using the final emission limits, in combination with the vent stream flow rates measured during emission tests.

For stripped resins at major sources, we calculated emissions assuming that all the HAP remaining in the resin would eventually be emitted from processes downstream of the resin stripper. This assumption results in a calculation of the potential emissions at the baseline stripped resin concentration levels, and final MACT concentration levels. Emissions were calculated from the HAP concentration in the stripped resin, and the resin production rate.

For wastewater at major sources, we estimated the emissions from the HAP concentration in the uncontrolled wastewater streams, the maintenance wastewater streams, and in the controlled wastewater streams, and the wastewater flow rates or generation rates.

For equipment leaks at major sources, we estimated emissions for the baseline LDAR program in use at each facility, and the final equipment leaks requirements using model equipment counts, average emission factors for leaking equipment and control efficiencies for LDAR programs developed as part of the technology review required by section 112(d)(6) of the CAA (see section V.H of this preamble for additional detail). Model equipment counts were used because actual equipment counts were not

collected as part of our August 21, 2009, CAA section 114 survey and testing request sent to the PVC industry. The survey requested information only on regulatory LDAR programs currently in place at each facility, and the costs for the facility to conduct the LDAR program.

For other emission sources, we estimated baseline emissions from gasholders using information provided by industry during the comment period. We estimated the emission reductions associated with installing floating objects on gasholder water seals to reduce emissions of vinyl chloride from those seals, as a beyond the floor option, based on additional information provided by the PVC industry after the comment period. We calculated emissions from reactor openings from information provided in responses to our August 21, 2009, CAA section 114 survey and testing request provided by affected sources.

We calculated emissions from heat exchange systems based on emissions information provided in the CAA section 114 survey responses provided by affected sources. Emission reductions from heat exchange systems were calculated assuming that, once the LDAR program was in effect, emissions would be eliminated due to the low leak action level that is being finalized.

Area Sources

For process vents, we calculated emissions from the concentration of HAP in the vent stream and the vent gas flow rates measured during emission tests. For process vents in the PVC-only subcategory, we calculated baseline emissions for the one area source in the subcategory from the measured HAP concentrations at the outlet of the control device. We did not select an option more stringent than the current emission level; therefore, there were no emission reductions calculated. For process vents in the PVC-combined subcategory, we calculated baseline emissions for the one area source in the subcategory from the measured HAP concentrations at the outlet of the control. Since the existing PVC-combined area source currently meets the GACT standards, we did not calculate a reduction of HAP emissions associated with meeting the GACT emission limits.

For stripped resins, emissions were calculated from the HAP concentration in the stripped resin, and the resin production rate. For the one existing area source in the suspension subcategory, we calculated emissions assuming that all the HAP remaining in the resin would eventually be emitted from processes downstream of the resin stripper. This assumption results in a calculation of the potential emissions at the stripped resin concentration levels the affected is currently achieving. Since the existing PVC area source in the suspension resin subcategory currently meets the GACT standard, no emission reductions were calculated. For the one existing area source in the bulk resins subcategory, we estimated emissions downstream of the resin stripper using emission rates submitted by the facility since resin produced by the bulk process does not go through downstream drying processes since the resin is in solid form after the polymerization process.

For wastewater at existing area sources, we estimated the emissions from the HAP concentration in the uncontrolled wastewater streams, the maintenance wastewater streams, and in the controlled wastewater streams, and the wastewater flow rates or generation rates.

For equipment leaks at existing area sources, we estimated emissions for the LDAR program in use at both area sources and emissions associated with complying with the GACT option. Emissions were calculated using a combination of facility provided and model equipment counts, average emission factors for leaking equipment and control efficiencies for LDAR programs developed as part of the technology review required by section 112(d)(6) of the CAA (see section V.H of this preamble for additional detail). Model equipment counts were used for equipment types for which counts were not provided by the affected sources. The CAA section 114 survey requested information only on regulatory LDAR programs currently in place at each facility, and the costs for the facility to conduct the LDAR program; however, one facility provided some, but not all equipment counts for which emissions were estimated.

For other emission sources, we calculated emissions from reactor openings from information provided in CAA section 114 survey responses provided by affected sources. The existing PVC area sources currently do not operate gasholders; therefore no emissions from gasholders were calculated for area sources.

We calculated emissions from heat exchange systems based on emissions information provided in the CAA section 114 survey responses provided by affected sources. Emission reductions from heat exchange systems were calculated assuming that, once the LDAR program was in effect, emissions would be eliminated due to the low leak action level that is being finalized.

B. What are the cost impacts?

We have estimated compliance costs for all existing sources to meet the sampling and testing requirements, add the necessary controls, monitoring devices, recordkeeping and reporting procedures to comply with the final rules. Based on this analysis, we anticipate an overall total initial investment of $17.6 million for major sources and $486,000 for area sources. We anticipate an associated total annual cost of $3.94 million for major sources and $167,000 for area sources (using a discount rate of 7 percent), in 2010 dollars, as shown in Table 20 and Table 21 of this preamble. We do not anticipate the construction of any new PVCPU in the next 5 years and, therefore, there are no new source cost impacts. Estimated impacts of the new area source requirements for a model facility are presented in the memoranda, *Costs and Emission Reductions of the MACT Floor Level of Control for the Promulgated Polyvinyl Chloride and Copolymers (PVC) Production Source Category and Cost and Emission Reductions of the Area Source Level of Control for the Promulgated Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* which are in the PVC docket.

TABLE 20—COST IMPACTS OF THE FINAL PVC AND COPOLYMERS PRODUCTION STANDARDS FOR EXISTING MAJOR SOURCES

Emission point	Total initial cost (million 2010$) [a]	Total annual cost (million 2010$/yr) [b]
Major sources MACT floor		
Process vents	3.38	1.72
Stripped resins	10.1	1.13
Wastewater	0.075	0.165
Equipment leaks	2.87	0.469
Storage vessels	0.0165	0.0233
Other emission sources	0.0165	0.0233
Heat exchange systems	0.0466	0.152
Major sources beyond the floor		
Equipment leaks	1.02	0.238
Storage vessels	0	0
Other emission sources—gasholders	0.0750	0.0222
Major source total	17.6	3.94

[a] Total initial costs for facilities include the capital cost of control equipment, testing and monitoring, recordkeeping and reporting.
[b] Total annual costs include: Annualized capital costs, annual cost to operate control equipment, testing and monitoring costs, recordkeeping and reporting costs, and repair costs.

TABLE 21—COST IMPACTS OF THE FINAL PVC AND COPOLYMERS PRODUCTION STANDARDS FOR EXISTING PVC AREA SOURCES

Emission point	Total initial cost (million$)	Total annual cost (million$)	Cost effectiveness ($/ton)
Process vents	0.0963a	0.0218b	([c])
Heat exchange systems	0.00743	0.0255	1,139
Resins	0.00864	0.0212	([c])
Wastewater	0.00743	0.00198	([c])
Equipment leaksd	0.360	0.0725	7,807
Other emission sources	0.00220	0.00311	([c])
Storage vessels	0.00220	0.00311	([c])
Area source total	0.484	0.167	([c])

[a] Total initial cost for process vents includes initial recordkeeping and reporting costs (which include year 1 annual costs) and initial process vent testing.
[b] Total annual costs for process vents include process vent testing and annual recordkeeping and reporting (starting in year 2). Process vent testing is required every 5 years following the initial test; therefore, annual testing costs have been divided by 5 to distribute costs evenly across the 5-year period.
[c] Standard does not result in emission reductions; therefore, a cost effectiveness is not applicable.
[d] Total initial costs for equipment leaks include capital costs associated with complying with 40 CFR part 63, subpart UU, the cost of an electronic PRD monitoring system and the initial recordkeeping and reporting requirements. Annual costs include operation of the PRD monitoring system, complying with subpart UU and annual recordkeeping and reporting costs. Emissions and reductions of VOC, volatile hazardous air pollutants (VHAP) and organic HAP, categorized as total HAP. Emissions, reductions and associated costs referenced from memorandum—Cindy Hancy, RTI, to Jodi Howard, EPA/OAQPS, dated November 10, 2011, subject: *Technology Review for Equipment Leaks* (draft format), which is available in the docket. Baseline emissions, reductions and costs are adjusted based on equipment counts provided by CertainTeed.

Major Sources

For major sources, we calculated costs to meet the final level of control for each emission point. For process vents, we estimated costs to meet the final level of control for PVCPU that do not currently meet the final emission limit, based on reported data. For such PVCPU that currently use thermal oxidizers in combination with acid-gas scrubbers, we estimate the cost of compliance through the use of enhanced vinyl chloride recovery using a refrigerated condenser to reduce the quantity of vinyl chloride combusted to meet the vinyl chloride, HCl, CDD/CDF and THC. For PVCPU that currently use an absorber for vinyl chloride recovery, cost calculations are based on routing the vent gas from the absorber to a refrigerated condenser for enhanced organic HAP recovery. Costs calculations also include capital and annual costs for testing and monitoring of vinyl chloride, HCl, THC and CDD/CDF.

For PVCPU not currently meeting the final stripped resin limits, costs to meet the final level of control are based on industry estimates for a new resin stripper resulting in greater removal of vinyl chloride and total HAP from the resin. Testing and monitoring costs are also included in the costs to meet the final level of control. All PVCPU are expected to meet the final wastewater stripper outlet concentration limit. Therefore, initial and annual costs consist of additional testing and monitoring required to demonstrate compliance with the final emission standards.

For equipment leaks, cost estimates previously developed by the EPA were applied to each PVCPU that did not

already meet the final level of control (*i.e.,* 40 CFR part 63, subpart UU). The cost estimates include additional capital and annual cost associated with facilities switching from compliance with 40 CFR part 61, subpart V to subpart UU. We estimated additional capital and annual costs for an electronic PRD indicator, based on data collected for other EPA projects.

For other emission sources, we calculated costs for complying with the final, beyond-the-floor, level of control for gasholders. Capital cost estimates were based on data provided by industry at the request of the EPA following the comment period. Annual cost estimates were based on standard factors for costs such as amortization, maintenance, taxes and administration.

We calculated costs for complying with the final level for heat exchange systems, based on information collected for other EPA projects.

The analysis is documented in the memorandum, *Revised Costs and Emission Reductions for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* and is available in the docket.

Area Sources

For existing area sources, we calculated costs to meet the final level of control for each emission point. For each emission point, we estimated costs of the major source testing, monitoring and recordkeeping requirements.

For process vents in the PVC-only and PVC-combined subcategories, we did not select an option more stringent than the current emission level; therefore, there were no additional costs calculated.

For the one existing area source in the suspension subcategory and the one existing area source in the bulk resins subcategory, we did not calculate any additional costs since both facilities meet the promulgated GACT standards.

For wastewater at existing area sources, we did not estimate any additional costs since both facilities meet the promulgated GACT standards.

For other emission sources, we did not estimate any additional costs since neither of the existing PVC area sources operate a gasholder.

For equipment leaks, cost estimates previously developed by the EPA were applied to the existing area source PVCPU. The cost estimates include additional capital and annual cost associated with the facility switching from compliance with 40 CFR part 61, subpart V to 40 CFR part 63, subpart UU. We estimated additional capital and annual costs for a PRD, based on data collected for other EPA projects.

We calculated costs for complying with the final level of control for heat exchange systems, based on information collected for other EPA projects. The analysis is documented in the memorandum, *Generally Achievable Control Technology (GACT) Analysis for Area Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* and is available in the PVC docket.

C. What are the non-air quality health, environmental and energy impacts?

Major Sources

We anticipate major affected sources will need to apply additional controls to meet the final emission limits. The energy impacts associated with meeting the final emission limits would consist primarily of additional electricity needs to run added or improved air pollution control devices. By our estimate, we anticipate that an additional 5,300 megawatt-hours per year would be required for the additional and improved control devices.

We anticipate secondary air impacts from major sources adding controls to meet the standards. The combustion of fuel needed to generate additional electricity would yield slight increases in nitrogen oxide (NO_X) and sulfur dioxide (SO_2) emissions. Since NO_X and SO_2 emissions and electric generating units are covered by capped emissions trading programs, we do not estimate an increase in secondary air impacts for these pollutants for this rule from additional electricity demand. The analyses are documented in the memorandum, *Revised Secondary Impacts for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category,* available in the docket.

Area Sources

We do not anticipate the area affected sources will need to apply any additional controls with additional electricity or fuel requirements associated with meeting the final emission limits. Therefore, we have not estimated any additional secondary electricity generation of air impacts for area sources.

D. What are the economic impacts of the final standards?

We performed an economic impact analysis for PVC consumers and producers nationally, using the annual compliance costs estimated for this final rule. The impacts to producers affected by this final rule are annualized costs of less than 0.7 percent of their revenues, using the most current year available for revenue data. Demand and supply of PVC product is inelastic according to data included in the Economic Impact Analysis. Based on this information, one can conclude that demand will respond less than 1 to 1 with a change in output price, and that supply is inelastic (*i.e.,* will respond less than 1 to 1) with a change in output price. Hence, based on these results and data, the overall economic impact of this final rule on the affected industries and their consumers should be low. For more information, please refer to the *Economic Impact Analysis for the Polyvinyl Chloride and Copolymer NESHAP* that is in the docket (EPA–HQ–OAR–2002–0037).

VII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a ''significant regulatory action'' because it raises novel legal or policy issues. Accordingly, the EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Order 12866 and Executive Order 13563 (76 FR 3821, January 21, 2011), and any changes made in response to OMB recommendations have been documented in the docket for this action.

In addition, the EPA prepared an analysis of the potential costs and emissions impacts associated with this action. This analysis is contained in *Cost and Impacts of the PVC and Copolymers Final Standard,* in Docket ID No. EPA–HQ–OAR–2002–0037. A copy of the analysis is available in the docket for this action and the analysis is briefly summarized in section VI.B of this preamble.

B. Paperwork Reduction Act

The information collection requirements in this final rule have been submitted for approval to OMB under the *Paperwork Reduction Act,* 44 U.S.C. 3501, *et seq.* The information collection requirements are not enforceable until the OMB approves them.

The information requirements are based on notification, recordkeeping and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to national emission standards. These recordkeeping and reporting requirements are specifically authorized by CAA section 114 (42 U.S.C. 7414). All information submitted to the EPA

pursuant to the recordkeeping and reporting requirements for which a claim of confidentiality is made is safeguarded according to agency policies set forth in 40 CFR part 2, subpart B.

The final rule requires maintenance inspections of the control devices, and some notifications or reports beyond those required by the General Provisions. The recordkeeping requirements require only the specific information needed to determine compliance. The information collection activities in this information collection request (ICR) include the following: Performance tests, wastewater sampling, resin sampling, LDAR monitoring, heat exchanger monitoring, PRD monitoring, operating parameter monitoring, preparation of a site-specific monitoring plan, monitoring and inspection, one-time and periodic reports and the maintenance of records. Some information collection activities included in the NESHAP may occur within the first 3 years, and are presented in this burden estimate, but may not occur until 4 or 5 years following promulgation of the final rule for some affected sources. To be conservative in our estimate, the burden for these items is included in this ICR. An initial notification is required to notify the Administrator of the applicability of this subpart, and to identify storage vessels, process vents, stripped resin, equipment leaks, wastewater, heat exchange systems and other emission sources subject to this subpart. A notification of performance test must be submitted, and a site-specific test plan written for the performance test, along with a monitoring plan. Following the initial performance test, the owner or operator must submit a notification of compliance status that documents the performance test and the values for the operating parameters. A periodic report submitted every 6 months documents the values for the operating parameters and deviations; a notification of inspection of vessels and related inspection records; leaking and monitoring information for equipment leaks; and leaking and monitoring data for heat exchangers, if greater than leak definition. Owners or operators of PVC facilities are required to keep records of certain parameters and information for a period of 5 years. The annual testing, annual monitoring, reporting and recordkeeping burden for this collection for major sources (averaged over the first 3 years after the effective date of the standards) is estimated to be $1.8 million. This includes 3,200 labor hours per year at a total labor cost of $0.3 million per year, and total non-labor capital costs of $2.8 million per year. The annual testing, annual monitoring, reporting and recordkeeping burden for this collection for area sources (averaged over the first 3 years after the effective date of the standards) is estimated to be $323,000. This includes 425 labor hours per year at a total labor cost of $41,000 per year, and total non-labor capital costs of $129,000 per year. These estimates include initial and annual performance tests, conducting and documenting semiannual excess emission reports, maintenance inspections, developing a monitoring plan, notifications and recordkeeping. Monitoring and testing cost were also included in the cost estimates presented in the control costs impacts estimates in section VI.B of this preamble. The total burden for the federal government (averaged over the first 3 years after the effective date of the standard) for major sources is estimated to be 809 hours per year, at a total labor cost of $37,281 per year. The total burden for the federal government (averaged over the first 3 years after the effective date of the standard) for area sources is estimated to be 160 hours per year, at a total labor cost of $7,324 per year. Burden is defined at 5 CFR 1320.3(b).

When a malfunction occurs, sources must report them according to the applicable reporting requirements of 40 CFR part 63, subparts DDDDDD and HHHHHHH. An affirmative defense to civil penalties for exceedances of emission limits that are caused by malfunctions is available to a source if it can demonstrate that certain criteria and requirements are satisfied. The criteria ensure that the affirmative defense is available only where the event that causes an exceedance of the emission limit meets the narrow definition of malfunction in 40 CFR 63.2 (*e.g.,* sudden, infrequent, not reasonably preventable and not caused by poor maintenance or careless operation) and where the source took necessary actions to minimize emissions. In addition, the source must meet certain notification and reporting requirements. For example, the source must prepare a written root cause analysis and submit a written report to the Administrator documenting that it has met the conditions and requirements for assertion of the affirmative defense. The EPA considered whether there might be any burden associated with the notification, recordkeeping and reporting requirements associated with the assertion of the affirmative defense. While recognizing that any such burdens are only incurred if there has been a violation and a source chooses to take advantage of the affirmative defense. The PVC industry is currently required to comply with the part 61 NESHAP requirement for releases from pressure relief valves and reactor manual vent valves, which does not allow a discharge into the atmosphere from these valves, except during an emergency. An emergency discharge means a ''discharge which could not have been avoided by taking measures to prevent the discharge.'' The owners or operators must, within 10 days of any release from a pressure relief valve or a reactor manual vent valve, submit a report to the Administrator. The report must include the ''nature and cause of discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss, the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.'' The costs for these reports are already accounted for in the ICR burden estimate. Therefore, the EPA estimates that there would be no additional costs for sources that choose to take advantage of the affirmative defense for malfunctions since it is already required for compliance with the rule. However, there may be other malfunctions that are not currently regulated under the part 61 NESHAP that might prompt a source to take advantage of an affirmative defense.

To provide the public with an estimate of the relative magnitude of the burden associated with an assertion of the affirmative defense position adopted by a source (for those not already regulated under the part 61 NESHAP), the EPA is including in the ICR the notification, recordkeeping and reporting requirements associated with the assertion of the affirmative defense might entail. The EPA's estimate for the required notification, reports and records, including the root cause analysis, totals $3,141 and is based on the time and effort required of a source to review relevant data, interview plant employees and document the events surrounding a malfunction that has caused an exceedance of an emission limit. The estimate also includes time to produce and retain the record and reports for submission to the EPA. The EPA provides this illustrative estimate of this burden because these costs are only incurred if there has been a violation and a source chooses to take advantage of the affirmative defense.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information

unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. When this ICR is approved by OMB, the agency will publish a technical amendment to 40 CFR part 9 in the **Federal Register** to display the OMB control number for the approved information collection requirements contained in this final rule.

C. Regulatory Flexibility Act

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act, or any other statute, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations and small governmental jurisdictions.

For purposes of assessing the impacts of this final rule on small entities, small entity is defined as: (1) A small business, as defined by the Small Business Administration's regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated, and is not dominant in its field.

After considering the economic impacts of this final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. The industry in which the affected entities are in is NAICS 325211 (Polyvinyl chemical resins manufacturing). The Small Business Administration small business size definition for this industry is 750 employees or less for parent entities. This final rule will not impose any requirements on small entities. To the EPA's knowledge, there are no small entities subject to the final rule.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain a federal mandate that may result in expenditures of $100 million or more for state, local and tribal governments, in the aggregate, or the private sector in any one year. The total annualized cost of this rule is estimated to be no more than $4.1 million (2010$) in any one year. Thus, this rule is not subject to the requirements of sections 202 or 205 of UMRA.

This rule is also not subject to the requirements of section 203 of UMRA, because it contains no regulatory requirements that might significantly or uniquely affect small governments. This rule impacts only PVC production facilities and, thus, does not impact small governments uniquely or significantly.

E. Executive Order 13132: Federalism

The action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. The final rule imposes requirements on owners and operators of specified major and area sources, and not on state or local governments. There are no PVC production facilities owned or operated by state or local governments. Thus, Executive Order 13132 does not apply to this action.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). The final rule imposes requirements on owners and operators of specified area sources, and not tribal governments. There are no PVC production facilities owned or operated by Indian tribal governments. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 (62 FR 19885, April 23, 1997) as applying to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the Executive Order has the potential to influence the regulation. This action is not subject to Executive Order 13045, because it is based solely on technology performance.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a ''significant energy action'' as defined in Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. The EPA estimates that the requirements in this final action would cause most PVCPU to modify existing air pollution control devices (e.g., increase the horsepower of their wet scrubbers) or install and operate new control devices, resulting in approximately 92,000 megawatt-hours per year of additional electricity being used.

Given the negligible change in energy consumption resulting from this final action, the EPA does not expect any significant price increase for any energy type. The cost of energy distribution should not be affected at all by this final action since the action would not affect energy distribution facilities. We also expect that any impacts on the import of foreign energy supplies, or any other adverse outcomes that may occur with regards to energy supplies, would not be significant. We, therefore, conclude that if there were to be any adverse energy effects associated with this final action, they would be minimal.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113 (15 U.S.C. 272 note) directs the EPA to use voluntary consensus standards (VCS) in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (e.g., materials specifications, test methods, sampling procedures and business practices) that are developed or adopted by VCS bodies. NTTAA directs the EPA to provide Congress, through OMB, explanations when the agency decides not to use available and applicable VCS.

This final rulemaking involves technical standards. The EPA proposes to use ANSI/ASME PTC 19.10–1981, *Flue and Exhaust Gas Analyses,* as an acceptable alternative to EPA Method 3B. This standard is available from the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990.

No applicable VCS were identified for EPA Methods 1A, 2A, 2D, 2F, 2G, 21, 107, RCRA SW–846, PS–8, PS–9 and the TCEQ Modified El Paso Method.

During the search, if the title or abstract (if provided) of the VCS described technical sampling and analytical procedures that were similar to the EPA's reference method, the EPA ordered a copy of the standard and reviewed it as a potential equivalent method. All potential standards were reviewed to determine the practicality of the VCS for this rule. This review requires significant method validation data that meet the requirements of EPA Method 301 for accepting alternative

methods or scientific, engineering and policy equivalence to procedures in the EPA reference methods. The EPA may reconsider determinations of impracticality when additional information is available for particular VCS.

The search identified 17 other VCS that were potentially applicable for this rule in lieu of the EPA reference methods. After reviewing the available standards, the EPA determined that 17 candidate VCS (ASTM D3154–00 (2006), ASTM D3464–96 (2007), ASTM D3796–90 (2004), ISO 10780:1994, ASME B133.9–1994 (2001), ANSI/ASME PTC 19.10–1981 Part 10, ISO 10396:1993 (2007), ISO 12039:2001, ASTM D5835–95 (2007), ASTM D6522–00 (2005), CAN/CSA Z223.2–M86 (1999), NIOSH Method 2010, Amines, Aliphatic, ASTM D6060–96 (2001), EN 1948–3 (1996), EN 1911–1.2.3 (1998), ASTM D6735–01, ASTM D4855–97 (2002)) identified for measuring emissions of pollutants or their surrogates subject to emission standards in the rule would not be practical due to lack of equivalency, documentation, validation data and other important technical and policy considerations.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority populations and low-income populations in the United States.

The EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations, because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population.

An analysis of demographic data shows that the average percentage of minorities, percentages of the population below the poverty level, and the percentages of the population 17 years old and younger, in close proximity to the sources, are similar to the national averages, with percentage differences of 3, 1.8 and 1.7, respectively, at the 3-mile radius of concern. These differences in the absolute number of percentage points from the national average indicate a 9.4-percent, 14.4-percent and 6.6-percent over-representation of minority populations, populations below the poverty level and the percentages of the population 17 years old and younger, respectively.

In determining the aggregate demographic makeup of the communities near affected sources, the EPA used census data at the block group level to identify demographics of the populations considered to be living near affected sources, such that they have notable exposures to current emissions from these sources. In this approach, the EPA reviewed the distributions of different socio-demographic groups in the locations of the expected emission reductions from this rule. The review identified those census block groups with centroids within a circular distance of a 0.5, 3 and 5 miles of affected sources, and determined the demographic and socio-economic composition (e.g., race, income, education, etc.) of these census block groups. The radius of 3 miles (or approximately 5 kilometers) has been used in other demographic analyses focused on areas around potential sources.[5 6 7 8] There was only one census block group with its centroid within 0.5 miles of any source affected by the final rule. The EPA's demographic analysis has shown that these areas, in aggregate, have similar proportions of American Indians, African-Americans, Hispanics and ''Other and Multi-racial'' populations to the national average. The analysis also showed that these areas, in aggregate, had similar proportions of families with incomes below the poverty level as the national average, and similar populations of children 17 years of age and younger.[9]

The EPA developed a communication and outreach strategy to ensure that interested communities have access to this final rule, are aware of its content, and had an opportunity to comment during the comment period. The EPA also ensured that interested communities had an opportunity to comment during the comment period. During the comment period, the EPA publicized the rulemaking via environmental justice newsletters, Tribal newsletters, environmental justice listservs and the Internet, including the EPA Office of Policy Rulemaking Gateway Web site (*http://yosemite.epa.gov/opei/RuleGate.nsf/*). The EPA will also conduct targeted outreach to environmental justice communities, as appropriate. Outreach activities may include providing general rulemaking fact sheets (*e.g.,* why is this important for my community) for environmental justice community groups, and conducting conference calls with interested communities. In addition, state and federal permitting requirements will provide state and local governments, and members of affected communities the opportunity to provide comments on the permit conditions associated with permitting the sources affected by the final rule.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801, *et seq.,* as added by the SBREFA of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing this final rule and other required information to the United States Senate, the United States House of Representatives and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2). This rule will be effective April 17, 2012.

List of Subjects in 40 CFR Part 63

Environmental protection, Administrative practice and procedure, Air pollution control, Hazardous substances, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements.

[5] U.S. GAO (Government Accountability Office). *Demographics of People Living Near Waste Facilities.* Washington DC: Government Printing Office; 1995.

[6] Mohai P. Saha R. *Reassessing Racial and Socio-economic Disparities in Environmental Justice Research.* Demography. 2006;43(2): 383–399.

[7] Mennis J. *Using Geographic Information Systems to Create and Analyze Statistical Surfaces of Populations and Risk for Environmental Justice Analysis. Social Science Quarterly,* 2002;83(1):281–297.

[8] Bullard RD, Mohai P, Wright B, Saha R, *et al. Toxic Waste and Race at Twenty 1987–2007.* United Church of Christ. March, 2007.

[9] The results of the demographic analysis are presented in *Review of Environmental Justice Impacts: Polyvinyl Chloride,* September 2010, a copy of which is available in the docket.

Dated: February 13, 2012.

Lisa P. Jackson,

Administrator.

For the reasons stated in the preamble, title 40, chapter I, part 63 of the Code of Federal Regulations, is amended as follows:

PART 63—[AMENDED]

■ 1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401, et seq.

Subpart A—[Amended]

■ 2. Section 63.14 is amended by:
■ a. Adding new paragraph (b)(45).
■ b. Revising paragraphs (b)(8), (b)(28), and (b)(54).
■ c. Revising paragraph (c)(3).
■ d. Revising paragraph (i)(1).
■ e. Revising paragraph (n)(1).
■ f. Adding paragraphs (p)(8) through (p)(11) to read as follows:

§ 63.14 Incorporations by reference.

* * * * *

(b) * * *

(8) ASTM D2879–83, Standard Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, approved 1983, IBR approved for §§ 63.111, 63.2406, and 63.12005.

* * * * *

(28) ASTM D6420–99 (Reapproved 2004), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectometry, approved 2004, IBR approved for §§ 60.485, 60.485a, 63.772, 63.2351, 63.2354, and table 8 to subpart HHHHHHH of this part.

* * * * *

(45) ASTM D2879–96, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, approved 1996, IBR approved for §§ 63.111, 63.2406, and 63.12005.

* * * * *

(54) ASTM D6348–03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, approved 2003, IBR approved for § 63.1349, table 4 to subpart DDDD of this part, and table 8 to subpart HHHHHHH of this part.

* * * * *

(c) * * *

(3) API Manual of Petroleum Measurement Specifications (MPMS) Chapter 19.2 (API MPMS 19.2), Evaporative Loss From Floating-Roof Tanks (formerly API Publications 2517 and 2519), First Edition, April 1997, IBR approved for §§ 63.1251 and 63.12005.

* * * * *

(i) * * *

(1) ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus],'' IBR approved for §§ 63.309, 63.865, 63.3166, 63.3360, 63.3545, 63.3555, 63.4166, 63.4362, 63.4766, 63.4965, 63.5160, 63.9307, 63.9323, 63.11148, 63.11155, 63.11162, 63.11163, 63.11410, 63.11551, 63.11945, table 5 to subpart DDDDD of this part, table 1 to subpart ZZZZZ of this part, table 4 to subpart JJJJJJ of this part, and table 5 to subpart UUUUU of this part.

* * * * *

(n) * * *

(1) ''Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources'' (Modified El Paso Method), Revision Number One, dated January 2003, Sampling Procedures Manual, Appendix P: Cooling Tower Monitoring, January 31, 2003, IBR approved for §§ 63.654 and 63.11920.

* * * * *

(p) * * *

(8) Method 8015C (SW–846–8015C), Nonhalogenated Organics by Gas Chromatography, Revision 3, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.11960, 63.11980, and table 10 to subpart HHHHHHH of this part.

(9) Method 8260B (SW–846–8260B), Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2, December 1996, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.11960, 63.11980, and table 10 to subpart HHHHHHH of this part.

(10) Method 8270D (SW–846–8270D), Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 4, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.11960, 63.11980, and table 10 to subpart HHHHHHH of this part.

(11) Method 8315A (SW–846–8315A), Determination of Carbonyl Compounds by High Performance Liquid Chromatography (HPLC), Revision 1, December 1996, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.11960, 63.11980, and table 10 to subpart HHHHHHH of this part.

* * * * *

Subpart DDDDDD—[Amended]

■ 3. Section 63.11140 is revised to read as follows:

§ 63.11140 Am I subject to this subpart?

(a) On or before April 17, 2012, you are subject to this subpart if you own or operate a plant specified in § 61.61(c) of this chapter that produces polyvinyl chloride (PVC) or copolymers and is an area source of hazardous air pollutant (HAP) emissions. After April 17, 2012, you are subject to the requirements in this subpart if you own or operate one or more polyvinyl chloride and copolymers process units (PVCPU), as defined in § 63.12005, that are located at, or are part of, an area source of HAP.

(b) On or before April 17, 2012, this subpart applies to each new or existing affected source. The affected source is the collection of all equipment and activities in vinyl chloride service necessary to produce PVC and copolymers. An affected source does not include portions of your PVC and copolymers production operations that meet the criteria in § 61.60(b) or (c) of this chapter. After April 17, 2012, this subpart applies to each polyvinyl chloride and copolymers production affected source. The polyvinyl chloride and copolymers production affected source is the facility-wide collection of PVCPU, storage vessels, heat exchange systems, surge control vessels, and wastewater and process wastewater treatment systems that are associated with producing polyvinyl chloride and copolymers.

(1) An affected source is existing if you commenced construction or reconstruction of the affected source before October 6, 2006.

(i) You must meet the applicable requirements of §§ 63.11142(a), 63.11143(a) and (b), 63.11144(a) and 63.11145 for existing affected sources.

(ii) You must achieve compliance by the date specified in § 63.11141(a).

(iii) You must meet the applicable requirements of §§ 63.11142(b) through (f), 63.11143(c), 63.11144(b) and 63.11145 for existing affected sources by the compliance date specified in § 63.11141(c), after which time you are no longer subject to the requirements listed in paragraphs (b)(1)(i) and (ii) of this section.

(2) An affected source is new if you commenced construction or reconstruction of the affected source between October 6, 2006, and May 20, 2011.

(i) You must meet the applicable requirements of §§ 63.11142(a), 63.11143(a) and (b), 63.11144(a) and 63.11145 for new affected sources.

(ii) You must achieve compliance by the date specified in § 63.11141(b).

(3) If you are a new affected source as specified in paragraph (b)(2) of this section that commenced construction or reconstruction between October 6, 2006, and May 20, 2011, then after April 17, 2012, you are considered an existing affected source.

(i) You must meet the applicable requirements of §§ 63.11142(b) through (f), 63.11143(c), 63.11144(b) and 63.11145 for existing affected sources.

(ii) You must achieve compliance by the date specified in § 63.11141(d), after which time you are no longer subject to paragraphs (b)(2)(i) and (ii) of this section.

(4) An affected source is new if you commenced construction or reconstruction of the affected source after May 20, 2011.

(i) You must meet the applicable requirements of §§ 63.11142(b) through (f), 63.11143(c), 63.11144(b), and 63.11145 for new affected sources.

(ii) You must achieve compliance by the date specified in § 63.11141(e).

(iii) If components of an existing affected source are replaced such that the replacement meets the definition of reconstruction in § 63.2 and the reconstruction commenced after May 20, 2011, then the existing affected source becomes a reconstructed source and is subject to the relevant standards for a new affected source. The reconstructed source must comply with the requirements of paragraph (b)(4)(i) of this section for a new affected source upon initial startup of the reconstructed source or by April 17, 2012, whichever is later.

(c) This subpart does not apply to research and development facilities, as defined in section 112(c)(7) of the Clean Air Act. After April 17, 2012, the requirements of this subpart also do not apply to chemical manufacturing process units, as defined in § 63.101, that produce vinyl chloride monomer or other raw materials used in the production of polyvinyl chloride and copolymers.

(d) You are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not otherwise required by law to obtain a permit under § 70.3(a) or § 71.3(a). Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart.

(e) After the applicable compliance date specified in § 63.11141(c), (d) or (e), an affected source that is also subject to the provisions of 40 CFR part 61, subpart F, is required to comply with the provisions of this subpart and no longer has to comply with 40 CFR part 61, subpart F.

(f) After the applicable compliance date specified in § 63.11141(c), (d) or (e), an affected source that is also subject to the provisions of other 40 CFR part 60 or 40 CFR part 63 subparts is required to comply with this subpart and any other applicable 40 CFR part 60 and 40 CFR part 63 subparts.

■ 4. Section 63.11141 is revised to read as follows:

§ 63.11141 What are my compliance dates?

(a) If you own or operate an existing affected source as specified in § 63.11140(b)(1), then you must achieve compliance with the applicable provisions in this subpart specified in § 63.11140(b)(1)(i) by January 23, 2007.

(b) If you own or operate a new affected source as specified in § 63.11140(b)(2), then you must achieve compliance with the applicable provisions in this subpart as specified in § 63.11140(b)(2)(i) by the dates in paragraphs (b)(1) or (2) of this section.

(1) If you start up a new affected source on or before January 23, 2007, you must achieve compliance with the applicable provisions in this subpart not later than January 23, 2007.

(2) If you start up a new affected source after January 23, 2007, but before or on May 20, 2011, then you must achieve compliance with the provisions in this subpart upon startup of your affected source.

(c) If you own or operate an existing affected source as specified in § 63.11140(b)(1), then you must achieve compliance with the applicable provisions in this subpart specified in § 63.11140(b)(1)(iii) by April 17, 2015.

(d) If you own or operate an affected source that commenced construction or reconstruction between October 6, 2006, and May 20, 2011, then you must achieve compliance with the applicable provisions of this subpart specified in § 63.11140(b)(3) by April 17, 2015.

(e) If you own or operate a new affected source as specified in § 63.11140(b)(4), then you must achieve compliance with the applicable provisions in this subpart specified in § 63.11140(b)(4)(i) by the dates in paragraphs (e)(1) and (2) of this section.

(1) If you start up your affected source between May 20, 2011, and April 17, 2012, then you must achieve compliance with the applicable provisions in this subpart not later than April 17, 2012.

(2) If you start up your affected source after April 17, 2012, then you must achieve compliance with the provisions in this subpart upon startup of your affected source.

■ 5. Section 63.11142 is revised to read as follows:

§ 63.11142 What are the standards and compliance requirements for new and existing sources?

(a) You must meet all the requirements in 40 CFR part 61, subpart F, except for §§ 61.62 and 61.63.

(b) You must comply with each emission limit and standard specified in Table 1 to this subpart that applies to your existing affected source, and you must comply with each emission limit and standard specified in Table 2 to this subpart that applies to your new affected source.

(c) The emission limits, operating limits and work practice standards specified in this subpart apply at all times, including periods of startup, shutdown and malfunction.

(d) You must demonstrate initial compliance by the dates specified in § 63.11141.

(e) You must conduct subsequent performance testing according to the schedule specified in § 63.11905.

(f) You must meet the requirements of the applicable sections of 40 CFR part 63, subpart HHHHHHH, as specified in paragraphs (f)(1) through (19) of this section, except for the purposes of complying with this subpart, where the applicable sections of 40 CFR part 63, subpart HHHHHHH, as specified in paragraphs (f)(1) through (19) of this section reference Table 1 or Table 2 to subpart HHHHHHH, reference is made to Table 1 or Table 2 to this subpart.

(1) You must comply with the requirements of § 63.11880(b).

(2) You must comply with the requirements of §§ 63.11890(a) through 63.11890(d) and are subject to § 63.11895.

(3) You must comply with the requirements of § 63.11896, except for the purposes of complying with this subpart, where § 63.11896 refers to § 63.11870(d) of subpart HHHHHHH, reference is made to § 63.11140(b)(4) of this subpart.

(4) You must comply with the requirements of § 63.11900, except for the purposes of complying with this subpart, where § 63.11900 refers to § 63.11875 of subpart HHHHHHH, reference is made to § 63.11141 of this subpart.

(5) You must meet the requirements of § 63.11910 for initial and continuous compliance for storage vessels.

(6) You must meet the requirements of § 63.11915 for equipment leaks.

(7) You must meet the requirements of § 63.11920 for initial and continuous compliance for heat exchange systems.

(8) You must meet the requirements of § 63.11925 for initial and continuous compliance for process vents.

(9) You must meet the requirements of § 63.11930 for closed vent systems.

(10) You must meet the requirements of § 63.11935 for continuous emissions monitoring systems (CEMS) and continuous parameter monitoring systems (CPMS) to demonstrate initial and continuous compliance with the emission standards for process vents.

(11) You must meet the requirements of § 63.11940 for continuous monitoring requirements for control devices required to install CPMS to meet the emission limits for process vents.

(12) You must meet the requirements of § 63.11945 for performance testing requirements for process vents.

(13) You must meet the requirements of § 63.11950 for emissions calculations to be used for an emission profile by process of batch process operations.

(14) You must meet the requirements of § 63.11955 for initial and continuous compliance requirements for other emission sources.

(15) You must meet the requirements of § 63.11956 for ambient monitoring.

(16) You must meet the requirements of § 63.11960 for initial and continuous compliance requirements for stripped resin.

(17) You must meet the requirements of § 63.11965 through § 63.11980 for general, initial and continuous compliance, test methods and calculation procedures for wastewater.

(18) You must meet the notification and reporting requirements of § 63.11985.

(19) You must meet the recordkeeping requirements of §§ 63.11990 and 63.11995.

■ 6. Section 63.11143 is revised to read as follows:

§ 63.11143 What General Provisions apply to this subpart?

(a) All the provisions in part 61, subpart A of this chapter apply to this subpart.

(b) The provisions in subpart A of this part, applicable to this subpart are specified in paragraphs (b)(1) and (2) of this section.

(1) § 63.1(a)(1) through (10).

(2) § 63.1(b) except paragraph (b)(3), §§ 63.1(c) and 63.1(e).

(c) Section 63.11885 specifies which parts of the General Provisions in subpart A of this part apply to you.

■ 7. Section 63.11144 is revised to read as follows:

§ 63.11144 What definitions apply to this subpart?

(a) On and before April 17, 2012, the terms used in this subpart are defined in the Clean Air Act; §§ 61.02 and 61.61 of this chapter; and § 63.2 for terms used in the applicable provisions of subpart A of this part, as specified in § 63.11143(b).

(b) After April 17, 2012, terms used in this subpart are defined in the Clean Air Act; § 63.2; and § 63.12005.

■ 8. Section 63.11145 is revised to read as follows:

§ 63.11145 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA or a delegated authority such as a state, local or tribal agency. If the U.S. EPA Administrator has delegated authority to a state, local or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to a state, local or tribal agency within your state.

(b) In delegating implementation and enforcement authority of this subpart to a state, local or tribal agency under subpart E of this part, the approval authorities contained in paragraphs (b)(1) through (4) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the state, local or tribal agency.

(1) Approval of an alternative means of emissions imitation under § 61.12(d) of this chapter.

(2) Approval of a major change to test methods under § 61.13(h) of this chapter. A ''major change to test method'' is defined in § 63.90.

(3) Approval of a major change to monitoring under § 61.14(g) of this chapter. A ''major change to monitoring'' is defined in § 63.90.

(4) Approval of a major change to reporting under § 61.10. A ''major change to recordkeeping/reporting'' is defined in § 63.90.

■ 9. Table 1 and Table 2 are added to subpart DDDDDD to read as follows:

TABLE 1 TO SUBPART DDDDDD OF PART 63—EMISSION LIMITS AND STANDARDS FOR EXISTING AFFECTED SOURCES

For this type of emission point . . .	And for this air pollutant . . .	And for an affected source producing this type of PVC resin . . .	You must meet this emission limit . . .
PVC-only process vents [a]	Vinyl chloride	All resin types	5.3 parts per million by volume (ppmv).
	Total hydrocarbons	All resin types	46 ppmv measured as propane.
	Total organic HAP [b].	All resin types	140 ppmv.
	Dioxins/furans (toxic equivalency basis).	All resin types	0.13 nanograms per dry standard cubic meter (ng/dscm).
PVC-combined process vents [a].	Vinyl chloride	All resin types	0.56 ppmv.
	Total hydrocarbons	All resin types	2.3 ppmv measured as propane.
	Total organic HAP [b]	All resin types	29 ppmv.
	Dioxins/furans (toxic equivalency basis).	All resin types	0.076 ng/dscm.
Stripped resin	Vinyl chloride	Bulk resin	7.1 parts per million by weight (ppmw).
		Dispersion resin	1,500 ppmw.
		Suspension resin	36 ppmw.
		Suspension blending resin	140 ppmw.
		Copolymer resin	790 ppmw.
	Total non-vinyl chloride organic HAP	Bulk resin	170 ppmw.
		Dispersion resin	320 ppmw.
		Suspension resin	36 ppmw.
		Suspension blending resin	500 ppmw.
		Copolymer resin	1,900 ppmw.
Process Wastewater	Vinyl chloride	All resin types	2.1 ppmw.

TABLE 1 TO SUBPART DDDDDD OF PART 63—EMISSION LIMITS AND STANDARDS FOR EXISTING AFFECTED SOURCES—Continued

For this type of emission point . . .	And for this air pollutant . . .	And for an affected source producing this type of PVC resin . . .	You must meet this emission limit . . .
	Total non-vinyl chloride organic HAP	All resin types	0.018 ppmw.

[a] Emission limits at 3 percent oxygen, dry basis.
[b] Affected sources have the option to comply with either the total hydrocarbon limit or the total organic HAP limit.

TABLE 2 TO SUBPART DDDDDD OF PART 63—EMISSION LIMITS AND STANDARDS FOR NEW AFFECTED SOURCES

For this type of emission point . . .	And for this air pollutant . . .	And for an affected source producing this type of PVC resin . . .	You must meet this emission limit . . .
PVC-only process vents [a]	Vinyl chloride	All resin types	5.3 parts per million by volume (ppmv).
	Total hydrocarbons	All resin types	46 ppmv measured as propane
	Total organic HAP [b]	All resin types	140 ppmv.
	Dioxins/furans (toxic equivalency basis).	All resin types	0.13 nanograms per dry standard cubic meter (ng/dscm).
PVC-combined process vents [a].	Vinyl chloride	All resin types	0.56 ppmv.
	Total hydrocarbons	All resin types	2.3 ppmv measured as propane
	Total organic HAP [b]	All resin types	29 ppmv
	Dioxins/furans (toxic equivalency basis).	All resin types	0.076 ng/dscm.
Stripped resin	Vinyl chloride	Bulk resin	7.1 parts per million by weight (ppmw).
		Dispersion resin	1,500 ppmw.
		Suspension resin	36 ppmw.
		Suspension blending resin	140 ppmw.
		Copolymer resin	790 ppmw.
	Total non-vinyl chloride organic HAP	Bulk resin	170 ppmw.
		Dispersion resin	320 ppmw.
		Suspension resin	36 ppmw.
		Suspension blending resin	500 ppmw.
		Copolymer resin	1,900 ppmw.
Process Wastewater	Vinyl chloride	All resin types	2.1 ppmw.
	Total non-vinyl chloride organic HAP	All resin types	0.018 ppmw.

[a] Emission limits at 3 percent oxygen, dry basis.
[b] Affected sources have the option to comply with either the total hydrocarbon limit or the total organic HAP limit.

■ 10. Part 63 is amended by adding and reserving subparts FFFFFFF and GGGGGGG, and adding subpart HHHHHHH, to read as follows:

Subparts FFFFFFF and GGGGGGG—[Reserved]

Subpart HHHHHHH—National Emission Standards for Hazardous Air Pollutant Emissions for Polyvinyl Chloride and Copolymers Production

What This Subpart Covers

Sec.

63.11860 What is the purpose of this subpart?
63.11865 Am I subject to the requirements in this subpart?
63.11870 What is the affected source of this subpart?
63.11871 What is the relationship to 40 CFR part 61, subpart F?
63.11872 What is the relationship to other subparts in this part?
63.11875 When must I comply with this subpart?

Emission Limits, Operating Limits and Work Practice Standards

63.11880 What emission limits, operating limits and standards must I meet?

General Compliance Requirements

63.11885 What parts of the General Provisions apply to me?
63.11890 What are my additional general requirements for complying with this subpart?
63.11895 How do I assert an affirmative defense for exceedance of emission standard during malfunction?
63.11896 What am I required to do if I make a process change at my affected source?

Testing and Compliance Requirements

63.11900 By what date must I conduct initial performance testing and monitoring, establish any applicable operating limits and demonstrate initial compliance with my emission limits and work practice standards?
63.11905 When must I conduct subsequent performance testing and monitoring to demonstrate continuous compliance?
63.11910 What are my initial and continuous compliance requirements for storage vessels?
63.11915 What are my compliance requirements for equipment leaks?
63.11920 What are my initial and continuous compliance requirements for heat exchange systems?
63.11925 What are my initial and continuous compliance requirements for process vents?
63.11930 What requirements must I meet for closed vent systems?
63.11935 What CEMS and CPMS requirements must I meet to demonstrate initial and continuous compliance with the emission standards for process vents?
63.11940 What continuous monitoring requirements must I meet for control devices required to install CPMS to meet the emission limits for process vents?
63.11945 What performance testing requirements must I meet for process vents?
63.11950 What emissions calculations must I use for an emission profile?
63.11955 What are my initial and continuous compliance requirements for other emission sources?
63.11956 What are my compliance requirements for ambient monitoring?

63.11960 What are my initial and continuous compliance requirements for stripped resin?
63.11965 What are my general compliance requirements for wastewater?
63.11970 What are my initial compliance requirements for process wastewater?
63.11975 What are my continuous compliance requirements for process wastewater?
63.11980 What are the test methods and calculation procedures for process wastewater?

Notifications, Reports and Records

63.11985 What notifications and reports must I submit and when?
63.11990 What records must I keep?
63.11995 In what form and how long must I keep my records?
63.12000 Who implements and enforces this subpart?

Definitions

63.12005 What definitions apply to this subpart?

Tables to Subpart HHHHHHH of Part 63

Table 1 to Subpart HHHHHHH of Part 63—Emission Limits and Standards for Existing Affected Sources
Table 2 to Subpart HHHHHHH of Part 63—Emission Limits and Standards for New Affected Sources
Table 3 to Subpart HHHHHHH of Part 63—Summary of Control Requirements for Storage Vessels at New and Existing Sources
Table 4 to Subpart HHHHHHH of Part 63—Applicability of the General Provisions to Part 63
Table 5 to Subpart HHHHHHH of Part 63—Operating Parameters, Operating Limits and Data Monitoring, Recording and Compliance Frequencies for Process Vents
Table 6 to Subpart HHHHHHH of Part 63—Toxic Equivalency Factors
Table 7 to Subpart HHHHHHH of Part 63—Calibration and Accuracy Requirements for Continuous Parameter Monitoring Systems
Table 8 to Subpart HHHHHHH of Part 63—Methods and Procedures for Conducting Performance Tests for Process Vents
Table 9 to Subpart HHHHHHH of Part 63—Procedures for Conducting Sampling of Resin and Process Wastewater
Table 10 to Subpart HHHHHHH of Part 63—HAP Subject to the Stripped Resin and Process Wastewater Provisions at New and Existing Sources

Subpart HHHHHHH—National Emission Standards for Hazardous Air Pollutant Emissions for Polyvinyl Chloride and Copolymers Production

What This Subpart Covers

§ 63.11860 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants emitted from the production of polyvinyl chloride and copolymers at major sources. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission standards.

§ 63.11865 Am I subject to the requirements in this subpart?

You are subject to the requirements in this subpart if you own or operate one or more polyvinyl chloride and copolymers production process units (PVCPU) as defined in § 63.12005 that are located at, or are part of, a major source of hazardous air pollutants (HAP) emissions as defined in § 63.2. The requirements of this subpart do not apply to research and development facilities, as defined in section 112(c)(7) of the Clean Air Act, or to chemical manufacturing process units, as defined in § 63.101, that produce vinyl chloride monomer or other raw materials used in the production of polyvinyl chloride and copolymers.

§ 63.11870 What is the affected source of this subpart?

(a) This subpart applies to each polyvinyl chloride and copolymers production affected source.

(b) The polyvinyl chloride and copolymers production affected source is the facility wide collection of PVCPU, storage vessels, heat exchange systems, surge control vessels, wastewater and process wastewater treatment systems that are associated with producing polyvinyl chloride and copolymers.

(c) An existing affected source is one for which construction was commenced on or before May 20, 2011, at a major source.

(d) A new affected source is one for which construction is commenced after May 20, 2011, at a major source.

(e) If components of an existing affected source are replaced such that the replacement meets the definition of reconstruction in § 63.2 and the reconstruction commenced after May 20, 2011, then the existing affected source becomes a reconstructed source and is subject to the relevant standards for a new affected source. The reconstructed source must comply with the requirements for a new affected source upon initial startup of the reconstructed source or by April 17, 2012, whichever is later.

§ 63.11871 What is the relationship to 40 CFR part 61, subpart F?

After the applicable compliance date specified in § 63.11875(a), (b) or (c), an affected source that is also subject to the provisions of 40 CFR part 61, subpart F, is required to comply with the provisions of this subpart and no longer has to comply with 40 CFR part 61, subpart F.

§ 63.11872 What is the relationship to other subparts in this part?

After the applicable compliance date specified in § 63.11875(a), (b) or (c), an affected source that is also subject to the provisions of other subparts in 40 CFR part 60 or this part is required to comply with this subpart and any other applicable subparts in 40 CFR part 60 or this part.

§ 63.11875 When must I comply with this subpart?

(a) If you own or operate an existing affected source, you must achieve compliance with the applicable provisions in this subpart no later than April 17, 2015. On or after April 17, 2015, any such existing affected source is no longer subject to the provisions of 40 CFR part 61, subpart F.

(b) If you start up a new affected source on or before April 17, 2012, you must achieve compliance with the provisions of this subpart no later than April 17, 2012. On or after April 17, 2012, any such new affected source is not subject to the provisions of 40 CFR part 61, subpart F.

(c) If you start up a new affected source after April 17, 2012, you must achieve compliance with the provisions of this subpart upon startup of your affected source. Upon startup, any such new affected source is not subject to the provisions of 40 CFR part 61, subpart F.

(d) You must meet the notification requirements in §§ 63.9 and 63.11985 according to the dates specified in those sections. Some of the notifications must be submitted before you are required to comply with the emission limits and standards in this subpart.

Emission Limits, Operating Limits and Work Practice Standards

§ 63.11880 What emission limits, operating limits and standards must I meet?

(a) You must comply with each emission limit and standard specified in Table 1 to this subpart that applies to your existing affected source, and you must comply with each emission limit and standard specified in Table 2 to this subpart that applies to your new affected source.

(b) You must establish an operating limit for each operating parameter required to be monitored in § 63.11925, and you must establish each operating limit as an operating range, minimum operating level or maximum operating level. You must comply with each established operating limit.

(c) You must comply with the emission limits and standards specified in §§ 63.11910 through 63.11980 that apply to your affected source.

General Compliance Requirements

§ 63.11885 What parts of the General Provisions apply to me?

Table 4 to this subpart specifies which parts of the General Provisions in subpart A of this part apply to you.

§ 63.11890 What are my additional general requirements for complying with this subpart?

(a) The emission limits, operating limits and work practice standards specified in this subpart apply at all times, including periods of startup, shutdown or malfunction.

(b) At all times, you must operate and maintain your affected source, including associated air pollution control components and monitoring system components, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether acceptable operation and maintenance procedures are being used will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(c) You must install, calibrate, maintain, and operate all monitoring system components according to §§ 63.8, 63.11935(b) and (c), and paragraphs (c)(1) and (2) of this section.

(1) Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments), you must operate the continuous monitoring system at all times the affected source is operating. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.

(2) You may not use data recorded during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. You must use all the data collected during all other required data collection periods in assessing the operation of the control device and associated control system. You must report any periods for which the monitoring system failed to collect required data.

(d) A deviation means any of the cases listed in paragraphs (d)(1) through (7) of this section.

(1) Any instance in which an affected source subject to this subpart, or an owner or operator of such a source, fails to meet any requirement or obligation established by this subpart, including, but not limited to, any emission limit, operating limit or work practice standard.

(2) When a performance test indicates that emissions of a pollutant in Table 1 or 2 to this subpart are exceeding the emission standard for the pollutant specified in Table 1 or 2 to this subpart.

(3) When a 3-hour block average from a continuous emissions monitor, as required by § 63.11925(c)(1) through (3), exceeds an emission limit in Table 1 or 2 to this subpart.

(4) When the average value of a monitored operating parameter, based on the data averaging period for compliance specified in Table 5 to this subpart, does not meet the operating limit established in § 63.11880(b).

(5) When an affected source discharges directly to the atmosphere from any of the sources specified in paragraphs (d)(5)(i) through (iv) of this section.

(i) A pressure relief device, as defined in § 63.12005.

(ii) A bypass, as defined in § 63.12005.

(iii) A closed vent system in vacuum service.

(iv) A closure device on a pressure vessel.

(6) Any instance in which the affected source subject to this subpart, or an owner or operator of such a source, fails to meet any term or condition specified in paragraph (d)(6)(i) or (ii) of this section.

(i) Any term or condition that is adopted to implement an applicable requirement in this subpart.

(ii) Any term or condition relating to compliance with this subpart that is included in the operating permit for any affected source required to obtain such a permit.

(7) Any failure to collect required data, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

§ 63.11895 How do I assert an affirmative defense for exceedance of emission standard during malfunction?

In response to an action to enforce the standards set forth in § 63.11880, you may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at 40 CFR 63.2. Appropriate penalties may be assessed, however, if you fail to meet your burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(a) Evidence. To establish the affirmative defense in any action to enforce such a standard, you must timely meet the notification requirements in paragraph (b) of this section, and must prove by a preponderance of evidence that:

(1) The violation:

(i) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner.

(ii) Could not have been prevented through careful planning, proper design or better operation and maintenance practices.

(iii) Did not stem from any activity or event that could have been foreseen and avoided, or planned for.

(iv) Were not part of a recurring pattern indicative of inadequate design, operation or maintenance.

(2) Repairs were made as expeditiously as possible when violation occurred. Off-shift and overtime labor were used, to the extent practicable to make these repairs.

(3) The frequency, amount and duration of the violation (including any bypass) were minimized to the maximum extent practicable.

(4) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage.

(5) All possible steps were taken to minimize the impact of the violations on ambient air quality, the environment and human health.

(6) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices.

(7) All of the actions in response to the violations were documented by properly signed, contemporaneous operating logs.

(8) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions.

(9) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violations resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(b) Report. The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator in the compliance report required by § 63.11985(b) with all necessary supporting documentation, that it has met the requirements set forth in this section.

§ 63.11896 What am I required to do if I make a process change at my affected source?

If you make a process change to an existing affected source that does not meet the criteria to become a new affected source in § 63.11870(d), you must comply with the requirements in paragraph (a) of this section and the testing and reporting requirements in paragraphs (c) and (d) of this section. If you make a process change to a new affected source, you must comply with the requirements in paragraph (b) of this section and the testing and reporting requirements in paragraphs (c) and (d) of this section. Refer to § 63.12005 for the definition of process changes.

(a) You must demonstrate that the changed process unit or component of the affected facility is in compliance with the applicable requirements for an existing affected source. You must demonstrate initial compliance with the emission limits and establish any applicable operating limits in § 63.11880 within 180 days of the date of start-up of the changed process unit or component of the affected facility. You must demonstrate compliance with any applicable work practice standards upon startup of the changed process unit or component of the affected facility.

(b) You must demonstrate that all changed emission points are in compliance with the applicable requirements for a new affected source. You must demonstrate initial compliance with the emission limits and establish any applicable operating limits in § 63.11880 within 180 days of the date of startup of the changed process unit or component of the affected facility. You must demonstrate compliance with any applicable work practice standards upon startup of the changed process unit or component of the affected facility.

(c) For process changes, you must demonstrate continuous compliance with your emission limits and standards, operating limits, and work practice standards according to the procedures and frequency in §§ 63.11910 through 63.11980.

(d) For process changes, you must submit the report specified in § 63.11985(b)(4)(iii).

Testing and Compliance Requirements

§ 63.11900 By what date must I conduct initial performance testing and monitoring, establish any applicable operating limits and demonstrate initial compliance with my emission limits and work practice standards?

(a) For existing affected sources, you must establish any applicable operating limits required in § 63.11880 and demonstrate initial compliance with the emission limits and standards specified in Tables 1 and 3 to this subpart, as applicable, no later than 180 days after the compliance date specified in § 63.11875 and according to the applicable provisions in § 63.7(a)(2).

(b) For existing affected sources, you must demonstrate initial compliance with any applicable work practice standards required in § 63.11880 no later than the compliance date specified in § 63.11875 and according to the applicable provisions in § 63.7(a)(2).

(c) For new or reconstructed affected sources, you must establish any applicable operating limits required in § 63.11880, and demonstrate initial compliance with the emission limits and standards specified in Tables 2 and 3 to this subpart, as applicable, no later than 180 days after the effective date of publication of the final rule in the **Federal Register** or within 180 days after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

(d) For new and reconstructed affected sources, you must demonstrate initial compliance with any applicable work practice standards required in § 63.11880 no later than the startup date of the affected source or the effective date of publication of the final rule in the **Federal Register**, whichever is later, and according to the applicable provisions in § 63.7(a)(2).

(e) If you demonstrate initial compliance using a performance test and a force majeure is about to occur, occurs, or has occurred for which you intend to assert a claim of force majeure, then you must follow the procedures in § 63.7(a)(4).

§ 63.11905 When must I conduct subsequent performance testing and monitoring to demonstrate continuous compliance?

Following the date of your initial demonstration of compliance in § 63.11900, you must conduct subsequent performance testing and monitoring to demonstrate continuous compliance with your emission limits, operating limits, and work practice standards according to the procedures and frequency in §§ 63.11910 through 63.11980. If you make a process change as specified in § 63.11896, such that a different emission limit or operating parameter limit applies, you must conduct a performance test according to § 63.11896.

§ 63.11910 What are my initial and continuous compliance requirements for storage vessels?

You must comply with the requirements specified in Table 3 to this subpart for each storage vessel in HAP service.

(a) For each fixed roof storage vessel used to comply with the requirements specified in Table 3 to this subpart, you must meet the requirements in paragraphs (a)(1) through (4) of this section. If you elect to use a fixed roof storage vessel vented to a closed vent system and control device, the closed vent system and control device must meet the requirements in §§ 63.11925 through 63.11950.

(1) *Design requirements.* (i) The fixed roof must be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between roof section joints or between the interface of the roof edge and the tank wall.

(ii) Each opening in the fixed roof must be equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the opening and the closure device.

(2) *Operating requirements.* (i) Except as specified in paragraph (a)(2)(ii) of this section, the fixed roof must be installed with each closure device secured in the closed position.

(ii) Opening of closure devices or removal of the fixed roof is allowed under conditions specified in paragraphs (a)(2)(ii)(A) and (B) of this section.

(A) A closure device may be opened or the roof may be removed when needed to provide access.

(B) A conservation vent that vents to the atmosphere is allowed during normal operations to maintain the tank internal operating pressure within tank design specifications. Normal operating conditions that may require these devices to open are during those times when the internal pressure of the storage vessel is outside the internal pressure operating range for the storage vessel as a result of loading or unloading operations or diurnal ambient temperature fluctuations.

(iii) During periods of planned routine maintenance of a control device, operate the storage vessel in accordance with paragraphs (a)(2)(iii)(A) and (B) of this section. You must keep the records specified in § 63.11990(b)(6).

(A) Do not add material to the storage vessel during periods of planned routine maintenance.

(B) Limit periods of planned routine maintenance for each control device to no more than 360 hours per year (hr/yr).

(3) *Inspection and monitoring requirements.* (i) Visually inspect the fixed roof and its closure devices for defects initially and at least once per calendar year except as specified in paragraph (a)(3)(ii) of this section. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the wall of the storage vessel; broken, cracked or otherwise damaged seals, or gaskets on closure devices; and broken or missing hatches, access covers, caps or other closure devices.

(ii) The inspection requirement specified in paragraph (a)(3)(i) of this section does not apply to parts of the fixed roof that you determine are unsafe to inspect because operating personnel would be exposed to an imminent or potential danger as a consequence of complying with paragraph (a)(3)(i) of this section, provided you comply with the requirements specified in paragraphs (a)(3)(ii)(A) and (B) of this section.

(A) You prepare and maintain at the plant site written documentation that identifies all parts of the fixed roof that are unsafe to inspect and explains why such parts are unsafe to inspect.

(B) You develop and implement a written plan and schedule to conduct inspections the next time alternative storage capacity becomes available and the storage vessel can be emptied or temporarily removed from service, as necessary, to complete the inspection. The required inspections must be performed as frequently as practicable but do not need to be performed more than once per calendar year. You must maintain a copy of the written plan and schedule at the plant site.

(4) *Repair requirements.* (i) Complete repair of a defect as soon as possible, but no later than 45 days after detection. You must comply with the requirements in this paragraph (a)(4)(i) except as provided in paragraph (a)(4)(ii) of this section.

(ii) Repair of a defect may be delayed beyond 45 days if you determine that repair of the defect requires emptying or temporary removal from service of the storage vessel and no alternative storage capacity is available at the site to accept the removed material. In this case, repair the defect the next time alternative storage capacity becomes available and the storage vessel can be emptied or temporarily removed from service.

(b) If you elect to use an internal floating roof storage vessel or external floating roof storage vessel to comply with the requirements specified in Table 3 to this subpart, you must meet all requirements of §§ 63.1060 through 63.1067 of subpart WW of this part for internal floating roof storage vessels or external floating roof storage vessels, as applicable.

(c) For each pressure vessel used to comply with the requirements specified in Table 3 to this subpart, you must meet the requirements in paragraphs (c)(1) through (4) of this section.

(1) Whenever the pressure vessel is in hazardous air pollutants (HAP) service, you must operate the pressure vessel as a closed system that does not vent to the atmosphere, e.g., during filling, emptying and purging. The vent stream during filling, emptying and purging must meet the requirements of § 63.11925(a) and (b).

(2) Each opening in the pressure vessel must be equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps or other open spaces in the closure device or between the perimeter of the opening and the closure device.

(3) All potential leak interfaces must be monitored annually for leaks using the procedures specified in § 63.11915 and you may adjust for background concentration. You must comply with the recordkeeping provisions specified in § 63.11990(b)(4) and the reporting provisions specified in § 63.11985(a)(1), (b)(1), and (b)(10).

(4) Pressure vessel closure devices must not discharge to the atmosphere. Any such release (e.g., leak) constitutes a violation of this rule. You must submit to the Administrator as part of your compliance report the information specified in § 63.11985(b)(10). This report is required even if you elect to follow the procedures specified in § 63.11895 to establish an affirmative defense.

§ 63.11915 What are my compliance requirements for equipment leaks?

For equipment in HAP service (as defined in § 63.12005), you must comply with the requirements in paragraphs (a) through (c) of this section.

(a) Requirement for certain equipment in subpart UU of this part. You must comply with §§ 63.1020 through 63.1025, 63.1027, 63.1029 through 63.1032, and 63.1034 through 63.1039 of subpart UU of this part.

(b) Requirements for pumps, compressors, and agitators. You must meet the requirements of paragraphs (b)(1) and (2) of this section. For each type of equipment specified in paragraphs (b)(1) and (2) of this section, you must also meet the requirements of paragraph (a) of this section.

(1) Rotating pumps. HAP emissions from seals on all rotating pumps in HAP service are to be minimized by either installing sealless pumps, pumps with double mechanical seals or equivalent equipment, or by complying with the requirements of 40 CFR part 63, subpart UU for rotating pumps. If double mechanical seals are used, emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by complying with § 63.11925(a) and (b); or equivalent equipment or procedures approved by the Administrator.

(2) Reciprocating pumps, rotating compressors, reciprocating compressors and agitators. HAP emissions from seals on all reciprocating pumps, rotating compressors, reciprocating compressors and agitators in HAP service are to be minimized by either installing double mechanical seals or equivalent equipment, or by complying with the requirements of 40 CFR part 63, subpart UU for reciprocating pumps, rotating compressors, reciprocating compressors and/or agitators. If double mechanical seals are used, HAP emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by complying with § 63.11925(a) and (b); or equivalent equipment or procedures approved by the Administrator.

(c) Requirements for pressure relief devices. For pressure relief devices in HAP service, as defined in § 63.12005, you must meet the requirements of this

paragraph (c) and paragraph (a) of this section, you must comply with the recordkeeping provisions in § 63.11990(c), and you must comply with the reporting provisions in §§ 63.11985(a)(2), (b)(2) and (c)(7).

(1) For pressure relief devices in HAP service that discharge directly to the atmosphere without first meeting the process vent emission limits in Table 1 or 2 to this subpart by routing the discharge to a closed vent system and control device designed and operated in accordance with the requirements in §§ 63.11925 through 63.11950, you must install, maintain, and operate release indicators as specified in paragraphs (c)(1)(i) and (ii) of this section. Any release to the atmosphere without meeting the process vent emission limits in Table 1 or 2 to this subpart, constitutes a violation of this rule. You must submit the report specified in § 63.11985(c)(7), as described in paragraph (c)(1)(iii) of this section.

(i) A release indicator must be properly installed on each pressure relief device in such a way that it will indicate when an emission release has occurred.

(ii) Each indicator must be equipped with an alert system that will notify an operator immediately and automatically when the pressure relief device is open. The alert must be located such that the signal is detected and recognized easily by an operator.

(iii) For any instance that the release indicator indicates that a pressure relief device is open, you must notify operators that a pressure release has occurred, and, within 10 days of the release, you must submit to the Administrator the report specified in § 63.11985(c)(7). This report is required even if you elect to follow the procedures specified in § 63.11895 to establish an affirmative defense.

(2) For pressure relief devices in HAP service that discharge directly to a closed vent system and control device designed and operated in accordance with the requirements in §§ 63.11925 through 63.11950, and are required to meet process vent emission limits in Table 1 or 2 to this subpart. Any release to the atmosphere without meeting the process vent emission limits in Table 1 or 2 to this subpart, constitutes a violation of this rule. You must notify operators that a pressure release has occurred, and, within 10 days of the release, you must submit to the Administrator the report specified in § 63.11985(c)(7). This report is required even if you elect to follow the procedures specified in § 63.11895(b) to establish an affirmative defense.

§ 63.11920 What are my initial and continuous compliance requirements for heat exchange systems?

(a) Except as provided in paragraph (b) of this section, you must perform monitoring to identify leaks of volatile organic compounds from each heat exchange system in HAP service subject to the requirements of this subpart according to the procedures in paragraphs (a)(1) through (4) of this section.

(1) *Monitoring locations for closed-loop recirculation heat exchange systems.* For each closed loop recirculating heat exchange system, you must collect and analyze a sample from the location(s) described in either paragraph (a)(1)(i) or (ii) of this section.

(i) Each cooling tower return line prior to exposure to air for each heat exchange system in HAP service.

(ii) Selected heat exchanger exit line(s) so that each heat exchanger or group of heat exchangers within a heat exchange system is covered by the selected monitoring location(s).

(2) *Monitoring locations for once-through heat exchange systems.* For each once-through heat exchange system, you must collect and analyze a sample from the location(s) described in paragraph (a)(2)(i) of this section. You may also elect to collect and analyze an additional sample from the location(s) described in paragraph (a)(2)(ii) of this section.

(i) Selected heat exchanger exit line(s) so that each heat exchanger or group of heat exchangers in HAP service within a heat exchange system is covered by the selected monitoring location(s).

(ii) The inlet water feed line for a once-through heat exchange system prior to any heat exchanger. If multiple heat exchange systems use the same water feed (i.e., inlet water from the same primary water source), you may monitor at one representative location and use the monitoring results for that sampling location for all heat exchange systems that use that same water feed.

(3) *Monitoring method.* You must determine the total strippable volatile organic compounds concentration or vinyl chloride concentration at each monitoring location using one of the analytical methods specified in paragraphs (a)(3)(i) through (iii) of this section.

(i) Determine the total strippable volatile organic compounds concentration (in parts per million by volume) as methane from the air stripping testing system using Modified El Paso Method (incorporated by reference, see § 63.14) using a flame ionization detector analyzer.

(ii) Determine the total strippable volatile organic compounds concentration (in parts per billion by weight) in the cooling water using Method 624 at 40 CFR part 136, appendix A. The target list of compounds shall be generated based on a pre-survey sample and analysis by gas chromatography/mass spectrometry and process knowledge to include all compounds that can potentially leak into the cooling water. If Method 624 of part 136, appendix A is not applicable for all compounds that can potentially leak into the cooling water for a given heat exchange system, you cannot use this monitoring method for that heat exchange system.

(iii) Determine the vinyl chloride concentration (in parts per billion by weight) in the cooling water using Method 107 at 40 CFR part 61, appendix A.

(4) *Monitoring frequency.* You must determine the total strippable volatile organic compounds or vinyl chloride concentration at each monitoring location at the frequencies specified in paragraphs (a)(4)(i) and (ii) of this section.

(i) For heat exchange systems for which you have not delayed repair of any leaks, monitor at least monthly. You may elect to monitor more frequently than the minimum frequency specified in this paragraph.

(ii) If you elect to monitor the inlet water feed line for a once-through heat exchange system as provided in paragraph (a)(2)(ii) of this section, you must monitor the inlet water feed line at the same frequency used to monitor the heat exchange exit line(s), as required in paragraph (a)(2)(i) of this section.

(b) A heat exchange system is not subject to the monitoring requirements in paragraph (a) of this section if it meets any one of the criteria in paragraphs (b)(1) through (3) of this section.

(1) All heat exchangers that are in HAP service within the heat exchange system operate with the minimum pressure on the cooling water side at least 35 kilopascals greater than the maximum pressure on the process side.

(2) The heat exchange system does not contain any heat exchangers that are in HAP service.

(3) The heat exchange system has a maximum cooling water flow rate of 10 gallons per minute or less.

(c) The leak action levels for both existing and new sources are specified in paragraphs (c)(1) through (3) of this section.

(1) If you elect to monitor your heat exchange system by using the

monitoring method specified in paragraph (a)(3)(i) of this section, then the leak action level is a total strippable volatile organic compounds concentration (as methane) in the stripping gas of 3.9 parts per million by volume.

(2) If you elect to monitor your heat exchange system by using the monitoring method specified in paragraph (a)(3)(ii) of this section, then the leak action level is a total strippable volatile organic compounds concentration in the cooling water of 50 parts per billion by weight.

(3) If you elect to monitor your heat exchange system by using the monitoring method specified in paragraph (a)(3)(iii) of this section, then the leak action level is a vinyl chloride concentration in the cooling water of 50 parts per billion by weight.

(d) A leak is defined as specified in paragraph (d)(1) or (2) of this section, as applicable.

(1) For once-through heat exchange systems for which you monitor the inlet water feed, as described in paragraph (a)(2)(ii) of this section, a leak is detected if the difference in the measurement value of the sample taken from a location specified in paragraph (a)(2)(i) of this section and the measurement value of the corresponding sample taken from the location specified in paragraph (a)(2)(ii) of this section equals or exceeds the leak action level.

(2) For all other heat exchange systems, a leak is detected if a measurement value taken according to the requirements in paragraph (a) of this section equals or exceeds the leak action level.

(e) If a leak is detected, you must repair the leak to reduce the measured concentration to below the applicable action level as soon as practicable, but no later than 45 days after identifying the leak, except as specified in paragraphs (f) and (g) of this section. Repair includes re-monitoring as specified in paragraph (a) of this section to verify that the measured concentration is below the applicable action level. Actions that you can take to achieve repair include but are not limited to:

(1) Physical modifications to the leaking heat exchanger, such as welding the leak or replacing a tube;

(2) Blocking the leaking tube within the heat exchanger;

(3) Changing the pressure so that water flows into the process fluid;

(4) Replacing the heat exchanger or heat exchanger bundle; or

(5) Isolating, bypassing or otherwise removing the leaking heat exchanger from service until it is otherwise repaired.

(f) If you detect a leak when monitoring a cooling tower return line or heat exchanger exit line under paragraph (a) of this section, you may conduct additional monitoring following the requirements in paragraph (a) of this section to further isolate each heat exchanger or group of heat exchangers in HAP service within the heat exchange system for which the leak was detected. If you do not detect any leaks when conducting additional monitoring for each heat exchanger or group of heat exchangers, the heat exchange system is excluded from repair requirements in paragraph (e) of this section.

(g) The delay of repair action level is defined as either a total strippable volatile organic compounds concentration (as methane) in the stripping gas of 39 parts per million by volume or a total strippable volatile organic compounds concentration in the cooling water of 500 parts per billion by weight or a vinyl chloride concentration in the cooling water of 500 parts per billion by weight. While you remain below the repair action level, you may delay the repair of a leaking heat exchanger only if one of the conditions in paragraphs (g)(1) or (2) of this section is met. If you exceed the repair action level you must repair according to paragraph (e) of this section. You must determine if a delay of repair is necessary as soon as practicable, but no later than 45 days after first identifying the leak.

(1) If the repair is technically infeasible without a shutdown and the total strippable volatile organic compounds or vinyl chloride concentration is initially and remains less than the delay of repair action level for all monitoring periods during the delay of repair, you may delay repair until the next scheduled shutdown of the heat exchange system. If, during subsequent monitoring, the total strippable volatile organic compounds or vinyl chloride concentration is equal to or greater than the delay of repair action level, you must repair the leak within 30 days of the monitoring event in which the total strippable volatile organic compounds or vinyl chloride concentration was equal to or exceeded the delay of repair action level.

(2) If the necessary equipment, parts, or personnel are not available and the total strippable volatile organic compounds or vinyl chloride concentration is initially and remains less than the delay of repair action level for all monitoring periods during the delay of repair, you may delay the repair for a maximum of 120 days from the day the leak was first identified. You must demonstrate that the necessary equipment, parts or personnel were not available. If, during subsequent monthly monitoring, the total strippable volatile organic compounds or vinyl chloride concentration is equal to or greater than the delay of repair action level, you must repair the leak within 30 days of the monitoring event in which the leak was equal to or exceeded the total strippable volatile organic compounds or vinyl chloride delay of repair action level.

(h) To delay the repair under paragraph (g) of this section, you must record the information in paragraphs (h)(1) through (4) of this section.

(1) The reason(s) for delaying repair.

(2) A schedule for completing the repair as soon as practical.

(3) The date and concentration of the leak as first identified and the results of all subsequent monitoring events during the delay of repair.

(4) An estimate of the potential emissions from the leaking heat exchange system following the procedures in paragraphs (h)(4)(i) and (ii) of this section.

(i) Determine the total strippable volatile organic compounds or vinyl chloride concentration in the cooling water, in parts per billion by weight. If the Modified El Paso Method is used, calculate the total strippable volatile organic compounds concentration in the cooling water using equation 7–1 from Modified El Paso Method (incorporated by reference, see § 63.14) and the total strippable volatile organic compounds concentration measured in the stripped air.

(ii) Calculate the emissions for the leaking heat exchange system by multiplying the volatile organic compounds or vinyl chloride concentration in the cooling water, ppbw, by the flow rate of the cooling water at the selected monitoring location and by the expected duration of the delay according to Equation 1 of this section. The flow rate may be based on direct measurement, pump curves, heat balance calculations or other engineering methods.

$$E_L = (C_{VC})(10^{-9})(V_{CW})(\rho_{CW})(60)(D_{delay}) \quad \text{(Eq. 1)}$$

Where:

E_L = Emissions from leaking heat exchange system, pounds of volatile organic compounds or vinyl chloride.

C_{VC} = Actual measured concentration of total strippable volatile organic compounds or vinyl chloride measured in the cooling water, parts per billion by weight (ppbw).

V_{CW} = Total volumetric flow rate of cooling water, gallons per minute (gpm).

ρ_{CW} = Density of cooling water, pounds per gallon (lb/gal).

D_{delay} = Expected duration of the repair delay, days.

§ 63.11925 What are my initial and continuous compliance requirements for process vents?

Each process vent must meet the requirements of paragraphs (a) through (h) of this section.

(a) *Emission limits*. Each process vent must meet the emission limits in Table 1 or 2 to this subpart prior to the vent stream being exposed to the atmosphere. The emission limits in Table 1 or 2 to this subpart apply at all times. The emission limits in Table 1 or 2 to this subpart must not be met through dilution.

(b) *Closed vent systems and control devices*. Each batch process vent, continuous process vent and miscellaneous vent that is in HAP service must be routed through a closed vent system to a control device. All gas streams routed to the closed vent system and control device must be for a process purpose and not for the purpose of diluting the process vent to meet the emission limits in Table 1 or 2 to this subpart. Each control device used to comply with paragraph (a) of this section must meet the requirements of §§ 63.11925 and 63.11940, and all closed vent systems must meet the requirements in § 63.11930. You must not use a flare to comply with the emission limits in Table 1 or 2 to this subpart.

(c) *General monitoring requirements*. Except as provided in paragraphs (c)(1) through (3) of this section, for each control device used to comply with the process vent emission limit specified in Table 1 or 2 to this subpart, you must install and operate a continuous parameter monitoring system (CPMS) to monitor each operating parameter specified in § 63.11940(a) through (h) to comply with your operating limit(s) required in § 63.11880(b).

(1) Hydrogen chloride continuous emission monitoring system (CEMS). In lieu of establishing operating limits in § 63.11880(b) and using CPMS to comply with the operating limits, as specified in § 63.11940(a) through (h), upon promulgation of a performance specification for hydrogen chloride CEMS, new and existing sources have the option to install a hydrogen chloride CEMS to demonstrate initial and continuous compliance with the hydrogen chloride emission limit for process vents, as specified in paragraphs (d) and (e) of this section.

(2) Dioxin/furan CEMS. In lieu of establishing operating limits in § 63.11880(b) and using CPMS to comply with the operating limits as specified in § 63.11940(a) through (h), upon promulgation of a performance specification for dioxin/furan CEMS, new and existing sources have the option to install a dioxin/furan CEMS to demonstrate initial and continuous compliance with the dioxins/furan emission limit for process vents, as specified in paragraphs (d) and (e) of this section.

(3) Total hydrocarbon CEMS. In lieu of establishing operating limits in § 63.11880(b) and using CPMS to comply with the operating limits as specified in § 63.11940(a) through (h), new and existing affected sources have the option to install a total hydrocarbon CEMS to demonstrate initial and continuous compliance with the total hydrocarbons or total organic HAP emission limit for process vents, as specified in paragraphs (d) and (e) of this section.

(d) *Initial compliance*. To demonstrate initial compliance with the emission limits in Table 1 or 2 to this subpart, you must comply with paragraphs (d)(1) through (5) of this section.

(1) You must conduct an initial inspection as specified in § 63.11930(d) for each closed vent system.

(2) For each CEMS and CPMS required or that you elect to use as specified in paragraph (c) of this section, you must prepare the quality control program and site-specific performance evaluation test plan as specified in § 63.11935(b) and site-specific monitoring plan specified in § 63.11935(c), respectively.

(3) For each CEMS and CPMS required or that you elect to use as specified in paragraph (c) of this section, you must install, operate, and maintain the CEMS and CPMS as specified in §§ 63.11935(b) and (c), respectively, and you must conduct an initial site-specific performance evaluation test according to your site-specific monitoring plan and §§ 63.11935(b)(3) and (c)(4), respectively.

(4) For each emission limit for which you use a CEMS to demonstrate compliance, you must meet the requirements specified in § 63.11890(c), and you must demonstrate initial compliance with the emission limits in Table 1 or 2 to this subpart based on 3-hour block averages of CEMS data collected at the minimum frequency specified in § 63.11935(b)(2) and calculated using the data reduction method specified in § 63.11935(e). For a CEMS used on a batch operation, you may use a data averaging period based on an operating block in lieu of the 3-hour averaging period.

(5) For each emission limit in Table 1 or 2 for which you do not use a CEMS to demonstrate compliance, you must meet the requirements of paragraphs (d)(5)(i) and (ii) of this section.

(i) You must conduct an initial performance test according to the requirements in § 63.11945 to demonstrate compliance with the total hydrocarbons or total organic HAP emission limit, vinyl chloride emission limit, hydrogen chloride emission limit, and dioxin/furan emission limit in Table 1 or 2 to this subpart.

(ii) During the performance test specified in paragraph (d)(5)(i) of this section, for each CPMS installed and operated as specified in paragraph (c) of this section, you must establish an operating limit as the operating parameter range, minimum operating parameter level, or maximum operating parameter level specified in § 63.11935(d). You must meet the requirements specified in § 63.11890(c). Each operating limit must be based on the data averaging period for compliance specified in Table 5 to this subpart using data collected at the minimum frequency specified in § 63.11935(c)(2) and calculated using the data reduction method specified in § 63.11935(e). For a CPMS used on a batch operation, you may use a data averaging period based on an operating block in lieu of the averaging period specified in Table 5 to this subpart.

(e) *Continuous compliance*. To demonstrate continuous compliance with the emission limits in Table 1 or 2 to this subpart for each process vent, you must comply with paragraphs (e)(1) through (5) of this section.

(1) You must meet the requirements in § 63.11930 for each closed vent system.

(2) You must operate and maintain each CEMS and CPMS required in paragraph (c) of this section as specified in § 63.11935(b) and (c), respectively.

(3) For each emission limit for which you use a CEMS to demonstrate compliance, you must meet the requirements in paragraphs (e)(3)(i) and (ii) of this section.

(i) You must conduct a periodic site-specific CEMS performance evaluation test according to your quality control program and site-specific performance evaluation test plan specified in § 63.11935(b)(1).

(ii) You must demonstrate continuous compliance with the emission limits in Table 1 or 2 to this subpart based on 3-hour block averages of CEMS data collected at the minimum frequency specified in § 63.11935(b)(2), and calculated using the data reduction method specified in § 63.11935(e). You must meet the requirements specified in § 63.11890(c). For a CEMS used on a batch operation, you may use a data averaging period based on an operating block in lieu of the 3-hour averaging period.

(4) For each emission limit for which you do not use a CEMS to demonstrate compliance, you must meet the requirements of paragraphs (e)(4)(i) and (ii) of this section.

(i) You must conduct a performance test once every 5 years according to the requirements in § 63.11945 for each pollutant in Table 1 or 2 to this subpart.

(ii) For each CPMS operated and maintained as specified in paragraph (e)(2) of this section, you must meet the requirements specified in paragraphs (e)(4)(ii)(A) through (C) of this section.

(A) You must conduct periodic site-specific CPMS performance evaluation tests according to your site-specific monitoring plan and § 63.11935(c).

(B) For each control device being monitored, you must continuously collect CPMS data consistent with § 63.11890(c) and your site-specific monitoring plan. You must continuously determine the average value of each monitored operating parameter based on the data collection and reduction methods specified in §§ 63.11935(c)(2) and 63.11935(e), and the applicable data averaging period for compliance specified in Table 5 to this subpart for all periods the process is operating. For a CPMS used on a batch operation, you may use a data averaging period based on an operating block in lieu of the averaging periods specified in Table 5 to this subpart.

(C) You must demonstrate continuous compliance with each operating limit established in paragraph (d)(5)(ii) of this section using these average values calculated in paragraph (e)(4)(ii)(B) of this section.

(5) Each closed vent system and control device used to comply with an emission limit in Table 1 or 2 to this subpart must be operated at all times when emissions are vented to, or collected by, these systems or devices.

(f) To demonstrate compliance with the dioxin/furan toxic equivalency emission limit specified in Table 1 or 2 to this subpart, you must determine dioxin/furan toxic equivalency as specified in paragraphs (f)(1) through (3) of this section.

(1) Measure the concentration of each dioxin/furan (tetra-through octachlorinated) congener emitted using Method 23 at 40 CFR part 60, appendix A–7.

(2) For each dioxin/furan (tetra-through octachlorinated) congener measured in accordance with paragraph (f)(1) of this section, multiply the congener concentration by its corresponding toxic equivalency factor specified in Table 6 to this subpart.

(3) Sum the products calculated in accordance with paragraph (f)(2) of this section to obtain the total concentration of dioxins/furans emitted in terms of toxic equivalency.

(g) *Emission profile*. You must characterize each process vent by developing an emissions profile for each contributing continuous process vent, miscellaneous vent and batch process vent according to paragraphs (g)(1) through (3) of this section.

(1) For batch process vents, the emissions profile must:

(i) Describe the characteristics of the batch process vent under worst-case conditions.

(ii) Determine emissions per episode and batch process vent emissions according to the procedures specified in § 63.11950.

(2) For continuous process vents, the flow rate and concentration must be determined according to paragraphs (g)(2)(i) through (iii) or according to paragraph (g)(2)(iv):

(i)(A) Method 1 or 1A of 40 CFR part 60, appendix A–1, as appropriate, shall be used for selection of the sampling site. The sampling site shall be after the last recovery device (if any recovery devices are present) but prior to being combined with any other continuous process vent, batch process vent, or miscellaneous vent, prior to the inlet of any control device that is present and prior to release to the atmosphere.

(B) No traverse site selection method is needed for vents smaller than 0.10 meter in diameter.

(ii) The gas volumetric flow rate shall be determined using Method 2, 2A, 2C or 2D of 40 CFR part 60, appendix A–1, as appropriate.

(iii) (A) Method 18 of 40 CFR part 60, appendix A–6 or Method 25A of 40 CFR part 60, appendix A–7 shall be used to measure concentration; alternatively, any other method or data that has been validated according to the protocol in Method 301 of appendix A of this part may be used.

(B) Where Method 18 of 40 CFR part 60, appendix A–6 is used, the following procedures shall be used to calculate parts per million by volume concentration:

(*1*) The minimum sampling time for each run shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at approximately equal intervals in time, such as 15-minute intervals during the run.

(*2*) The concentration of either total organic compounds (TOC) (minus methane and ethane) or organic HAP shall be calculated according to paragraph (g)(2)(iii)(B)(2)(i) or (g)(2)(iii)(B)(2)(ii) of this section as applicable.

(*i*) The TOC concentration (C_{TOC}) is the sum of the concentrations of the individual components and shall be computed for each run using Equation 1 of this section:

$$C_{TOC} = \frac{\sum_{i=1}^{x}\left(\sum_{j=1}^{n} C_{ji}\right)}{X} \qquad \text{(Eq. 1)}$$

Where:

C_{TOC} = Concentration of TOC (minus methane and ethane), dry basis, parts per million by volume.

C_{ji} = Concentration of sample component j of the sample i, dry basis, parts per million by volume.

n = Number of components in the sample.

x = Number of samples in the sample run.

(*ii*) The total organic HAP concentration (CHAP) shall be computed according to Equation 1 of this section except that only the organic HAP species shall be summed. The list of organic HAP is provided in Table 2 to subpart F of this part.

(C) Where Method 25A of 40 CFR part 60, appendix A–7 is used, the following procedures shall be used to calculate parts per million by volume TOC concentration:

(*1*) Method 25A of 40 CFR part 60, appendix A–7, shall be used only if a single organic HAP compound is greater than 50 percent of total organic HAP, by volume, in the vent stream.

(*2*) The vent stream composition may be determined by either process knowledge, test data collected using an appropriate EPA method, or a method or data validated according to the protocol in Method 301 of appendix A of this part. Examples of information that could constitute process knowledge include calculations based on material balances, process stoichiometry, or previous test results provided the results are still relevant to the current vent stream conditions.

(*3*) The organic HAP used as the calibration gas for Method 25A of 40 CFR part 60, appendix A–7 shall be the single organic HAP compound present at greater than 50 percent of the total organic HAP by volume.

(*4*) The span value for Method 25A of 40 CFR part 60, appendix A–7 shall be 50 parts per million by volume.

(*5*) Use of Method 25A of 40 CFR part 60, appendix A–7 is acceptable if the response from the high-level calibration gas is at least 20 times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on the most sensitive scale.

(iv) Engineering assessment including, but not limited to, the following:

(A) Previous test results provided the tests are representative of current operating practices at the process unit.

(B) Bench-scale or pilot-scale test data representative of the process under representative operating conditions.

(C) Maximum flow rate, TOC emission rate, organic HAP emission rate, or net heating value limit specified or implied within a permit limit applicable to the process vent.

(D) Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties. Examples of analytical methods include, but are not limited to:

(*1*) Use of material balances based on process stoichiometry to estimate maximum organic HAP concentrations,

(*2*) Estimation of maximum flow rate based on physical equipment design such as pump or blower capacities,

(*3*) Estimation of TOC or organic HAP concentrations based on saturation conditions,

(*4*) Estimation of maximum expected net heating value based on the vent stream concentration of each organic compound or, alternatively, as if all TOC in the vent stream were the compound with the highest heating value.

(E) All data, assumptions, and procedures used in the engineering assessment shall be documented.

(3) For miscellaneous process vents the emissions profile must be determined according to paragraph (g)(2)(iv) of this section.

(h) *Process changes.* Except for temporary shutdowns for maintenance activities, if you make a process change such that, as a result of that change, you are subject to a different process vent limit in Table 1 or 2 to this subpart, then you must meet the requirements of § 63.11896.

§ 63.11930 What requirements must I meet for closed vent systems?

(a) *General.* To route emissions from process vents subject to the emission limits in Table 1 or 2 to this subpart to a control device, you must use a closed vent system and meet the requirements of this section and all provisions referenced in this section. However, if you operate and maintain your closed vent system in vacuum service as defined in § 63.12005, you must meet the requirements in paragraph (h) of this section and are not required to meet the requirements in paragraphs (a) through (g) of this section.

(b) *Collection of emissions.* Each closed vent system must be designed and operated to collect the HAP vapors from each continuous process vent, miscellaneous process vent and batch process vent, and to route the collected vapors to a control device.

(c) *Bypass.* For each closed vent system that contains a bypass as defined in § 63.12005 (*e.g.*, diverting a vent stream away from the control device), you must not discharge to the atmosphere through the bypass. Any such release constitutes a violation of this rule. The use of any bypass diverted to the atmosphere during a performance test invalidates the performance test. You must comply with the provisions of either paragraph (c)(1) or (2) of this section for each closed vent system that contains a bypass that could divert a vent stream to the atmosphere.

(1) Bypass flow indicator. Install, maintain, and operate a flow indicator as specified in paragraphs (c)(1)(i) through (iv) of this section.

(i) The flow indicator must be properly installed at the entrance to any bypass.

(ii) The flow indicator must be equipped with an alarm system that will alert an operator immediately, and automatically when flow is detected in the bypass. The alarm must be located such that the alert is detected and recognized easily by an operator.

(iii) If the alarm is triggered, you must immediately initiate procedures to identify the cause of the alarm. If any closed vent system has discharged to the atmosphere through a vent or bypass, you must initiate procedures to stop the bypass discharge.

(iv) For any instances where the flow indicator alarm is triggered, you must submit to the Administrator as part of your compliance report, the information specified in § 63.11985(b)(9) and (10). This report is required even if you elect to follow the procedures specified in § 63.11895 to establish an affirmative defense and submit the reports specified in § 63.11985(b)(11).

(2) Bypass valve configuration. Secure the bypass valve in the non-diverting position with a car-seal or a lock-and-key type configuration.

(i) You must visually inspect the seal or closure mechanism at least once every month to verify that the valve is maintained in the non-diverting position, and the vent stream is not diverted through the bypass. A broken seal or closure mechanism or a diverted valve constitutes a violation from the emission limits in Table 1 or 2 to this subpart. You must maintain the records specified in paragraph (g)(1)(ii) of this section.

(ii) For each seal or closure mechanism, you must comply with either paragraph (c)(2)(ii)(A) or (B) of this section.

(A) For each instance that you change the bypass valve to the diverting position, you must submit to the Administrator as part of your compliance report, the information specified in § 63.11985(b)(9) and (10). This report is required even if you elect to follow the procedures specified in § 63.11895 to establish an affirmative defense and submit the reports specified in § 63.11985(b)(11).

(B) You must install, maintain, and operate a bypass flow indicator as specified in paragraphs (c)(1)(i) and (ii) of this section and you must meet the requirements in paragraph (c)(1)(iii) and (iv) of this section for each instance that the flow indicator alarm is triggered.

(d) *Closed vent system inspection and monitoring requirements.* Except as provided in paragraph (d)(3) of this section, you must inspect each closed vent system as specified in paragraph (d)(1) or (2) of this section.

(1) Hard-piping inspection. If the closed vent system is constructed of hard-piping, you must comply with the requirements specified in paragraphs (d)(1)(i) and (ii) of this section.

(i) Conduct an initial inspection according to the procedures in paragraph (e) of this section.

(ii) Conduct annual inspections for visible, audible, or olfactory indications of leaks.

(2) Ductwork inspection. If the closed vent system is constructed of ductwork, you must conduct initial and annual inspections according to the procedures in paragraph (e) of this section.

(3) Equipment that is unsafe to inspect. You may designate any parts of the closed vent system as unsafe to inspect if you determine that personnel would be exposed to an immediate danger as a consequence of complying with the initial and annual closed vent system inspection requirements of this subpart.

(e) *Closed vent system inspection procedures.* Except as provided in paragraph (e)(4) of this section, you must comply with all provisions of paragraphs (e)(1) through (3) of this section.

(1) General. Inspections must be performed during periods when HAP is being collected by or vented through the closed vent system. A leak is indicated by an instrument reading greater than 500 parts per million by volume above background or by visual inspection.

(2) Inspection procedures. Each closed vent system subject to this paragraph (e)(2) must be inspected according to the procedures specified in paragraphs (e)(2)(i) through (vii) of this section.

(i) Inspections must be conducted in accordance with Method 21 at 40 CFR part 60, appendix A–7, except as otherwise specified in this section.

(ii) Except as provided in paragraph (e)(2)(iii) of this section, the detection instrument must meet the performance criteria of Method 21 at 40 CFR part 60, appendix A–7, except the instrument response factor criteria in section 8.1.1.2 of Method 21 must be for the representative composition of the process fluid and not of each individual volatile organic compound in the stream. For process streams that contain nitrogen, air, water or other inerts that are not organic HAP or volatile organic compound, the representative stream response factor must be determined on an inert-free basis. You may determine the response factor at any concentration for which you will monitor for leaks.

(iii) If no instrument is available at the plant site that will meet the performance criteria of Method 21 at 40 CFR part 60, appendix A–7 specified in paragraph (e)(2)(ii) of this section, the instrument readings may be adjusted by multiplying by the representative response factor of the process fluid, calculated on an inert-free basis as described in paragraph (e)(2)(ii) of this section.

(iv) The detection instrument must be calibrated before use on each day of its use by the procedures specified in Method 21 at 40 CFR part 60, appendix A–7.

(v) Calibration gases must be as specified in paragraphs (e)(2)(v)(A) through (D) of this section.

(A) Zero air (less than 10 parts per million by volume hydrocarbon in air).

(B) Mixtures of methane in air at a concentration less than 10,000 parts per million by volume. A calibration gas other than methane in air may be used if the instrument does not respond to methane or if the instrument does not meet the performance criteria specified in paragraph (e)(2)(ii) of this section. In such cases, the calibration gas may be a mixture of one or more of the compounds to be measured in air.

(C) If the detection instrument's design allows for multiple calibration scales, then the lower scale must be calibrated with a calibration gas that is no higher than 2,500 parts per million by volume.

(D) Perform a calibration drift assessment, at a minimum, at the end of each monitoring day. Check the instrument using the same calibration gas(es) that were used to calibrate the instrument before use. Follow the procedures specified in Method 21 at 40 CFR part 60, appendix A–7, section 10.1, except do not adjust the meter readout to correspond to the calibration gas value. Record the instrument reading for each scale used as specified in paragraph (g)(4) of this section. Divide these readings by the initial calibration values for each scale and multiply by 100 to express the calibration drift as a percentage. If any calibration drift assessment shows a negative drift of more than 10 percent from the initial calibration value, then all equipment monitored since the last calibration with instrument readings below the appropriate leak definition and above the leak definition multiplied by the value specified in paragraph (e)(2)(v)(D)(*1*) of this section must be re-monitored. If any calibration drift assessment shows a positive drift of more than 10 percent from the initial calibration value, then, at your discretion, all equipment since the last calibration with instrument readings above the appropriate leak definition and below the leak definition multiplied by the value specified in paragraph (e)(2)(v)(D)(*2*) of this section may be re-monitored.

(*1*) 100 minus the percent of negative drift, divided by 100.

(*2*) 100 plus the percent of positive drift, divided by 100.

(vi) You may elect to adjust or not adjust instrument readings for background. If you elect not to adjust readings for background, all such instrument readings must be compared directly to 500 parts per million by volume to determine whether there is a leak. If you elect to adjust instrument readings for background, you must measure background concentration using the procedures in this section. You must subtract the background reading from the maximum concentration indicated by the instrument.

(vii) If you elect to adjust for background, the arithmetic difference between the maximum concentration indicated by the instrument and the background level must be compared with 500 parts per million by volume for determining whether there is a leak.

(3) Instrument probe. The instrument probe must be traversed around all potential leak interfaces as described in Method 21 at 40 CFR part 60, appendix A–7.

(4) Unsafe-to-inspect written plan requirements. For equipment designated as unsafe to inspect according to the provisions of paragraph (d)(3) of this section, you must maintain and follow a written plan that requires inspecting the equipment as frequently as practical during safe-to-inspect times, but not more frequently than the annual inspection schedule otherwise applicable. You must still repair unsafe-to-inspect equipment according to the procedures in paragraph (f) of this section if a leak is detected.

(f) *Closed vent system leak repair provisions.* The provisions of this paragraph (f) apply to closed vent systems collecting HAP from an affected source.

(1) Leak repair general for hard-piping. If there are visible, audible, or olfactory indications of leaks at the time

of the annual visual inspections required by paragraph (d)(1)(ii) of this section, you must follow the procedure specified in either paragraph (f)(1)(i) or (ii) of this section.

(i) You must eliminate the leak.

(ii) You must monitor the equipment according to the procedures in paragraph (e) of this section and comply with the leak repair provisions in paragraph (f)(2) of this section.

(2) Leak repair schedule. Leaks must be repaired as soon as practical, except as provided in paragraph (f)(3) of this section.

(i) A first attempt at repair must be made no later than 5 days after the leak is detected.

(ii) Except as provided in paragraph (f)(3) of this section, repairs must be completed no later than 15 days after the leak is detected or at the beginning of the next introduction of vapors to the system, whichever is later.

(3) Delay of repair. Delay of repair of a closed vent system for which leaks have been detected is allowed if repair within 15 days after a leak is detected is technically infeasible or unsafe without a closed vent system shutdown or if you determine that emissions resulting from immediate repair would be greater than the emissions likely to result from delay of repair. Repair of such equipment must be completed as soon as practical, but not later than the end of the next closed vent system shutdown.

(g) *Closed vent system records.* For closed vent systems, you must record the information specified in paragraphs (g)(1) through (5) of this section, as applicable.

(1) Bypass records. For each closed vent system that contains a bypass that could divert a vent stream away from the control device and to the atmosphere, or cause air intrusion into the control device, you must keep a record of the information specified in either paragraph (g)(1)(i) or (ii) of this section, as applicable.

(i) You must maintain records of any alarms triggered because flow was detected in the bypass, including the date and time the alarm was triggered, the duration of the flow in the bypass, as well as records of the times of all periods when the vent stream is diverted from the control device or the flow indicator is not operating.

(ii) Where a seal mechanism is used to comply with paragraph (c)(2) of this section, hourly records of flow are not required. In such cases, you must record that the monthly visual inspection of the seals or closure mechanisms has been done, and must record the occurrence of all periods when the seal mechanism is broken, the bypass valve position has changed, or the key for a lock-and-key type lock has been checked out, and records of any car-seal that has been broken.

(2) Inspection records. For each instrumental or visual inspection conducted in accordance with paragraph (d)(1) or (2) of this section for closed vent systems collecting HAP from an affected source during which no leaks are detected, you must record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(3) Leak records. When a leak is detected from a closed vent system collecting HAP from an affected source, the information specified in paragraphs (g)(3)(i) through (vi) of this section must be recorded and kept for 5 years.

(i) The instrument and the equipment identification number and the operator name, initials, or identification number.

(ii) The date the leak was detected and the date of the first attempt to repair the leak.

(iii) The date of successful repair of the leak.

(iv) The maximum instrument reading measured by the procedures in paragraph (e) of this section after the leak is successfully repaired.

(v) Repair delayed and the reason for the delay if a leak is not repaired within 15 days after discovery of the leak. You may develop a written procedure that identifies the conditions that justify a delay of repair. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.

(vi) Copies of the compliance reports as specified in § 63.11985(b)(9), if records are not maintained on a computerized database capable of generating summary reports from the records.

(4) Instrument calibration records. You must maintain records of the information specified in paragraphs (g)(4)(i) through (vi) of this section for monitoring instrument calibrations conducted according to sections 8.1.2 and 10 of Method 21 at 40 CFR part 60, appendix A–7, and paragraph (e) of this section.

(i) Date of calibration and initials of operator performing the calibration.

(ii) Calibration gas cylinder identification, certification date, and certified concentration.

(iii) Instrument scale(s) used.

(iv) A description of any corrective action taken if the meter readout could not be adjusted to correspond to the calibration gas value in accordance with section 10.1 of Method 21 at 40 CFR part 60, appendix A–7.

(v) Results of each calibration drift assessment required by paragraph (e)(2)(v)(D) of this section (*i.e.,* instrument reading for calibration at end of the monitoring day and the calculated percent difference from the initial calibration value).

(vi) If you make your own calibration gas, a description of the procedure used.

(5) Unsafe-to-inspect records. If you designate equipment as unsafe-to-inspect as specified in paragraph (d)(3) of this section, you must keep the records specified in paragraph (g)(5)(i) and (ii) of this section.

(i) You must maintain the identity of unsafe-to-inspect equipment as specified in paragraph (d)(3) of this section.

(ii) You must keep a written plan for inspecting unsafe-to-inspect equipment as required by paragraph (e)(4) of this section and record all activities performed according to the written plan.

(h) Closed vent systems in vacuum service. If you operate and maintain a closed vent system in vacuum service as defined in § 63.12005, you must comply with the requirements in paragraphs (h)(1) through (3) of this section, and you are not required to comply with any other provisions of this section. Any incidence where a closed vent system designed to be in vacuum service is operating and not in vacuum service constitutes a violation of this rule, unless the closed vent system is meeting the requirements in paragraphs (a) through (g) of this section for closed vent systems that are not in vacuum service. Any such incidence during a performance test invalidates the performance test.

(1) In vacuum service alarm. You must install, maintain, and operate a pressure gauge and alarm system that will alert an operator immediately and automatically when the pressure is such that the closed vent system no longer meets the definition of in vacuum service as defined in § 63.12005. The alarm must be located such that the alert is detected and recognized easily by an operator.

(2) In vacuum service alarm procedures. If the alarm is triggered for a closed vent system operating in vacuum service as specified in paragraph (h)(1) of this section, you must immediately initiate procedures to identify the cause of the alarm. If the closed vent system is not in vacuum service, you must initiate procedures to get the closed vent system back in vacuum service as defined in § 63.12005, or you must immediately comply with the requirements in paragraphs (a) through (g) of this section

for closed vent systems that are not in vacuum service.

(3) In vacuum service alarm records and reports. For any incidences where a closed vent system designed to be in vacuum service is not in vacuum service, you must submit to the Administrator as part of your compliance report, the information specified in § 63.11985(b)(10). This report is required even if you elect to follow the procedures specified in § 63.11895 to establish an affirmative defense and submit the reports specified in § 63.11985(b)(11).

§ 63.11935 What CEMS and CPMS requirements must I meet to demonstrate initial and continuous compliance with the emission standards for process vents?

(a) *General requirements for CEMS and CPMS.* You must meet the requirements in paragraph (b) of this section for each CEMS specified in § 63.11925(c) used to demonstrate compliance with the emission limits for process vents in Table 1 or 2 to this subpart. You must meet the CPMS requirements in paragraph (c) of this section and establish your operating limits in paragraph (d) of this section for each operating parameter specified in Table 5 to this subpart for each process vent control device specified in § 63.11925(b) that is used to comply with the emission limits for process vents in Table 1 or 2 to this subpart, except that flow indicators specified in § 63.11940(a) are not subject to the requirements of this section.

(b) *CEMS.* You must install, operate, and maintain each CEMS according to paragraphs (b)(1) through (7) of this section and continuously monitor emissions.

(1) You must prepare your quality control program and site-specific performance evaluation test plan, as specified in § 63.8(d) and (e). You must submit your performance evaluation test plan to the Administrator for approval, as specified in § 63.8(e)(3).

(2) The monitoring equipment must be capable of providing a continuous record, recording data at least once every 15 minutes.

(3) You must conduct initial and periodic site-specific performance evaluations and any required tests of each CEMS according to your quality control program and site-specific performance evaluation test plan prepared as specified in § 63.8(d) and (e).

(4) If supplemental gases are added to the control device, you must correct the measured concentrations in accordance with § 63.11945(d)(3).

(5) You must operate and maintain the CEMS in continuous operation according to the quality control program and performance evaluation test plan. CEMS must record data at least once every 15 minutes.

(6) CEMS must meet the minimum accuracy and calibration frequency requirements specified in the performance specifications specified in paragraphs (b)(6)(i) and (ii) of this section, as applicable.

(i) A hydrogen chloride or dioxin/furan CEMS must meet the requirements of the promulgated performance specification for the CEMS.

(ii) A total hydrocarbon CEMS must meet the requirements of 40 CFR Part 60, Appendix B, performance specification 8A.

(7) Before commencing or ceasing use of a CEMS system, you must notify the Administrator as specified in paragraphs (b)(7)(i) and (ii) of this section.

(i) You must notify the Administrator 1 month before starting use of the continuous emissions monitoring system.

(ii) You must notify the Administrator 1 month before stopping use of the continuous emissions monitoring system, in which case you must also conduct a performance test within 60 days of ceasing operation of the system.

(c) *CPMS.* You must install, maintain, and operate each CPMS as specified in paragraphs (c)(1) through (6) of this section and continuously monitor operating parameters.

(1) As part of your quality control program and site-specific performance evaluation test plan prepared as specified in § 63.8(d) and (e), you must prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements specified in paragraphs (c)(1)(i) through (v) of this section and § 63.8(d). You are not required to submit the plan for approval unless requested by the Administrator. You may request approval of monitoring system quality assurance and quality control procedure alternatives to those specified in paragraphs (c)(1)(i) through (v) of this section in your site-specific monitoring plan.

(i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations.

(ii) Sampling interface (*e.g.,* thermocouple) location such that the monitoring system will provide representative measurements.

(iii) Equipment performance checks, calibrations, or other audit procedures.

(iv) Ongoing operation and maintenance procedures in accordance with provisions in § 63.8(c)(1) and (3).

(v) Ongoing reporting and recordkeeping procedures in accordance with provisions in § 63.10(c), (e)(1) and (e)(2)(i).

(2) The monitoring equipment must be capable of providing a continuous record, recording data at least once every 15 minutes.

(3) You must install, operate, and maintain each CPMS according to the procedures and requirements in your site-specific monitoring plan.

(4) You must conduct an initial and periodic site-specific performance evaluation tests of each CPMS according to your site-specific monitoring plan.

(5) All CPMS must meet the specific parameter (*e.g.,* minimum accuracy and calibration frequency) requirements specified in § 63.11940 and Table 7 to this subpart.

(6) Monitoring equipment for temperature, pressure, volumetric flow rate, mass flow rate and conductivity must be capable of measuring the appropriate parameter over a range that extends at least 20 percent beyond the normal expected operating range of values for that parameter. The data recording system associated with affected CPMS must have a resolution that is equal to or better than one-half of the required system accuracy.

(d) *Establish operating limit.* For each operating parameter that must be monitored in § 63.11925(c) for process vent control devices, you must establish an operating limit as specified in paragraphs (d)(1) through (4) of this section. You must establish each operating limit as an operating parameter range, minimum operating parameter level, or maximum operating parameter level as specified in Table 7 to this subpart. Where this subpart does not specify which format to use for your operating limit (*e.g.,* operating range or minimum operating level), you must determine which format is best to establish proper operation of the control device such that you are meeting the emission limits specified in Table 1 or 2 to this subpart.

(1) For process vent control devices, the operating limit established for each monitored parameter specified in § 63.11940 must be based on the operating parameter values recorded during any performance test conducted to demonstrate compliance as required by § 63.11925(d)(4) and (e)(4) and may be supplemented by engineering assessments and/or manufacturer's recommendations. You are not required

to conduct performance tests over the entire range of allowed operating parameter values. The established operating limit must represent the conditions for which the control device is meeting the emission limits specified in Table 1 or 2 to this subpart.

(2) You must include as part of the notification of compliance status or the operating permit application or amendment, the information in paragraphs (d)(2)(i) through (iv) of this section, as applicable, for each process vent control device requiring operating limits.

(i) Descriptions of monitoring devices, monitoring frequencies and operating scenarios.

(ii) The established operating limit of the monitored parameter(s).

(iii) The rationale for the established operating limit, including any data and calculations used to develop the operating limit and a description of why the operating limit indicates proper operation of the control device.

(iv) The rationale used to determine which format to use for your operating limit (*e.g.,* operating range, minimum operating level or maximum operating level), where this subpart does not specify which format to use.

(3) For batch processes, you may establish operating limits for individual batch emission episodes, including each distinct episode of process vent emissions or each individual type of batch process that generates wastewater, if applicable. You must provide rationale in a batch precompliance report as specified in § 63.11985(c)(2) instead of the notification of compliance status for the established operating limit. You must include any data and calculations used to develop the operating limits and a description of why each operating limit indicates proper operation of the control device during the specific batch emission episode.

(4) If you elect to establish separate operating limits for different batch emission episodes within a batch process as specified in paragraph (d)(3) of this section, you must maintain daily records indicating each point at which you change from one operating limit to another, even if the monitoring duration for an operating limit is less than 15 minutes. You must maintain a daily record according to § 63.11990(e)(4)(i).

(e) *Reduction of CPMS and CEMS data.* You must reduce CEMS and CPMS data to 1-hour averages according to § 63.8(g) to compute the average values for demonstrating compliance specified in §§ 63.11925(e)(3)(ii), 63.11925(e)(4)(ii)(B), and 63.11960(c)(2) for CEMS and CPMS, as applicable.

§ 63.11940 What continuous monitoring requirements must I meet for control devices required to install CPMS to meet the emission limits for process vents?

As required in § 63.11925(c), you must install and operate the applicable CPMS specified in paragraphs (a) through (g) of this section for each control device you use to comply with the emission limits for process vents in Table 1 or 2 to this subpart. You must monitor, record, and calculate CPMS data averages as specified in Table 7 to this subpart. Paragraph (h) of this section provides an option to propose alternative monitoring parameters or procedures.

(a) *Flow indicator.* If flow to a control device could be intermittent, you must install, calibrate, and operate a flow indicator at the inlet or outlet of the control device to identify periods of no flow.

(b) *Thermal oxidizer monitoring.* If you are using a thermal oxidizer to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in § 63.11925(c), you must equip the thermal oxidizer with the monitoring equipment specified in paragraphs (b)(1) through (3) of this section, as applicable.

(1) If a thermal oxidizer other than a catalytic thermal oxidizer is used, you must install a temperature monitoring device in the fire box or in the ductwork immediately downstream of the fire box in a position before any substantial heat exchange occurs.

(2) Except as provided in paragraph (b)(3) of this section, where a catalytic thermal oxidizer is used, you must install temperature monitoring devices in the gas stream immediately before and after the catalyst bed. You must monitor the temperature differential across the catalyst bed.

(3) Instead of complying with paragraph (b)(2) of this section, and if the temperature differential between the inlet and outlet of the catalytic thermal oxidizer during normal operating conditions is less than 10 degrees Celsius (18 degrees Fahrenheit), you may elect to monitor the inlet temperature and conduct catalyst checks as specified in paragraphs (b)(3)(i) and (ii) of this section.

(i) You must conduct annual sampling and analysis of the catalyst activity (*i.e.,* conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures. If problems are found during the catalyst activity test, you must replace the catalyst bed or take other corrective action consistent with the manufacturer's recommendations within 15 days or by the next time any process vent stream is collected by the control device, whichever is sooner.

(ii) You must conduct annual internal inspections of the catalyst bed to check for fouling, plugging, or mechanical breakdown. You must also inspect the bed for channeling, abrasion, and settling. If problems are found during the annual internal inspection of the catalyst, you must replace the catalyst bed or take other corrective action consistent with the manufacturer's recommendations within 15 days or by the next time any process vent stream is collected by the control device, whichever is later. If the catalyst bed is replaced and is not of like or better kind and quality as the old catalyst then you must conduct a new performance test according to § 63.11945 to determine destruction efficiency. If a catalyst bed is replaced and the replacement catalyst is of like or better kind and quality as the old catalyst, then a new performance test to determine destruction efficiency is not required.

(c) *Absorber and acid gas scrubber monitoring.* If you are using an absorber or acid gas scrubber to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in § 63.11925(c), you must install the monitoring equipment specified in paragraphs (c)(1) through (3) of this section.

(1) Install and operate the monitoring equipment as specified in either paragraph (c)(1)(i) or (ii) of this section.

(i) A flow meter to monitor the absorber or acid gas scrubber influent liquid flow.

(ii) A flow meter to monitor the absorber or acid gas scrubber influent liquid flow and the gas stream flow using one of the procedures specified in paragraphs (c)(1)(ii)(A), (B), or (C) of this section. You must monitor the liquid-to-gas ratio determined by dividing the flow rate of the absorber or acid gas scrubber influent by the gas flow rate. The units of measure must be consistent with those used to calculate this ratio during the performance test.

(A) Determine gas stream flow using the design blower capacity, with appropriate adjustments for pressure drop.

(B) Measure the gas stream flow at the absorber or acid gas scrubber inlet.

(C) If you have previously determined compliance for a scrubber that requires a determination of the liquid-to-gas ratio, you may use the results of that test provided the test conditions are representative of current operation.

(2) Install and operate the monitoring equipment as specified in either paragraph (c)(2)(i), (ii), or (iii) of this section.

(i) Install and operate pressure gauges at the inlet and outlet of the absorber or acid gas scrubber to monitor the pressure drop through the absorber or acid gas scrubber.

(ii) If the difference in the inlet gas stream temperature and the inlet liquid stream temperature is greater than 38 degrees Celsius, you may install and operate a temperature monitoring device at the scrubber gas stream exit.

(iii) If the difference between the specific gravity of the scrubber effluent scrubbing fluid and specific gravity of the scrubber inlet scrubbing fluid is greater than or equal to 0.02 specific gravity units, you may install and operate a specific gravity monitoring device on the inlet and outlet of the scrubber.

(3) If the scrubbing liquid is a reactant (e.g., lime, ammonia hydroxide), you must install and operate one of the devices listed in either paragraph (c)(3)(i), (ii) or (iii) of this section.

(i) A pH monitoring device to monitor the pH of the scrubber liquid effluent.

(ii) A caustic strength monitoring device to monitor the caustic strength of the scrubber liquid effluent.

(iii) A conductivity monitoring device to monitor the conductivity of the scrubber liquid effluent.

(d) *Regenerative adsorber monitoring.* If you are using a regenerative adsorber to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in § 63.11925(c), you must install and operate the applicable monitoring equipment listed in paragraphs (d)(1) through (5) of this section, and comply with the requirements in paragraphs (d)(6) and (7) of this section. If the adsorption system water is wastewater as defined in § 63.12005, then it is subject to the requirements of § 63.11965.

(1) For non-vacuum regeneration systems, an integrating regeneration stream flow monitoring device having an accuracy of ±10 percent, capable of recording the total regeneration stream mass for each regeneration cycle. For non-vacuum regeneration systems, an integrating regeneration stream flow monitoring device capable of continuously recording the total regeneration stream mass flow for each regeneration cycle.

(2) For non-vacuum regeneration systems, an adsorber bed temperature monitoring device, capable of continuously recording the adsorber bed temperature after each regeneration and within 15 minutes of completing any temperature regulation (cooling or warming to bring bed temperature closer to vent gas temperature) portion of the regeneration cycle.

(3) For non-vacuum and non-steam regeneration systems, an adsorber bed temperature monitoring device capable of continuously recording the bed temperature during regeneration, except during any temperature regulating (cooling or warming to bring bed temperature closer to vent gas temperature) portion of the regeneration cycle.

(4) For a vacuum regeneration system, a pressure transmitter installed in the vacuum pump suction line capable of continuously recording the vacuum level for each minute during regeneration. You must establish a minimum target and a length of time at which the vacuum must be below the minimum target during regeneration.

(5) A device capable of monitoring the regeneration frequency (*i.e.,* operating time since last regeneration) and duration.

(6) You must perform a verification of the adsorber during each day of operation. The verification must be through visual observation or through an automated alarm or shutdown system that monitors and records system operational parameters. The verification must verify that the adsorber is operating with proper valve sequencing and cycle time.

(7) You must conduct weekly measurements of the carbon bed outlet volatile organic compounds concentration over the last 5 minutes of an adsorption cycle for each carbon bed. For regeneration cycles longer than 1 week, you must perform the measurement over the last 5 minutes of each adsorption cycle for each carbon bed. The outlet concentration of volatile organic compounds must be measured using a portable analyzer, in accordance with Method 21 at 40 CFR part 60, appendix A–7, for open-ended lines. Alternatively, outlet concentration of HAP(s) may be measured using chromatographic analysis using Method 18 at 40 CFR part 60, appendix A–6.

(e) *Non-regenerative adsorber monitoring.* If you are using a non-regenerative adsorber, or canister type system that is sent off site for regeneration or disposal, to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in § 63.11925(c), you must install a system of dual adsorber units in series and conduct the monitoring and bed replacement as specified in paragraphs (e)(1) through (4) of this section.

(1) Establish the average adsorber bed life by conducting daily monitoring of the outlet volatile organic compound or HAP concentration, as specified in this paragraph (e)(1), of the first adsorber bed in series until breakthrough occurs for the first three adsorber bed change-outs. The outlet concentration of volatile organic compounds must be measured using a portable analyzer, in accordance with Method 21 at 40 CFR part 60, appendix A–7, for open-ended lines. Alternatively, outlet concentration of HAP may be measured using chromatographic analysis using Method 18 at 40 CFR part 60, appendix A–6. Breakthrough of the bed is defined as the time when the level of HAP detected is at the highest concentration allowed to be discharged from the adsorber system.

(2) Once the average life of the bed is determined, conduct ongoing monitoring as specified in paragraphs (e)(2)(i) through (iii) of this section.

(i) Except as provided in paragraphs (e)(2)(ii) and (iii) of this section, conduct daily monitoring of the adsorber bed outlet volatile organic compound or HAP concentration, as specified in paragraph (e)(1) of this section.

(ii) You may conduct monthly monitoring if the adsorbent has more than 2 months of life remaining, as determined by the average primary adsorber bed life, established in paragraph (e)(1) of this section, and the date the adsorbent was last replaced.

(iii) You may conduct weekly monitoring if the adsorbent has more than 2 weeks of life remaining, as determined by the average primary adsorber bed life, established in paragraph (e)(1) of this section, and the date the adsorbent was last replaced.

(3) The first adsorber in series must be replaced immediately when breakthrough is detected between the first and second adsorber. The original second adsorber (or a fresh canister) will become the new first adsorber and a fresh adsorber will become the second adsorber. For purposes of this paragraph (e)(3), ''immediately'' means within 8 hours of the detection of a breakthrough for adsorbers of 55 gallons or less, and within 24 hours of the detection of a breakthrough for adsorbers greater than 55 gallons.

(4) In lieu of replacing the first adsorber immediately, you may elect to monitor the outlet of the second canister beginning on the day the breakthrough between the first and second canister is identified and each day thereafter. This daily monitoring must continue until the first canister is replaced. If the constituent being monitored is detected at the outlet of the second canister during this period of daily monitoring, both canisters must be replaced within 8 hours of the time of detection of

volatile organic compounds or HAP at 90 percent of the allowed level (90 percent of breakthrough definition).

(f) *Condenser monitoring.* If you are using a condenser to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in § 63.11925(c), you must install and operate a condenser exit gas temperature monitoring device.

(g) *Other control devices.* If you use a control device other than those listed in this subpart to comply with an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in § 63.11925(c), you must comply with the requirements as specified in paragraphs (g)(1) and (2) of this section.

(1) Submit a description of the planned monitoring, recordkeeping, and reporting procedures. The Administrator will approve, deny or modify the proposed monitoring, reporting and recordkeeping requirements as part of the review of the plan or through the review of the permit application or by other appropriate means.

(2) You must establish operating limits for monitored parameters that are approved by the Administrator. To establish the operating limit, the information required in § 63.11935(d) must be submitted in the notification of compliance status report specified in § 63.11985(a).

(h) *Alternatives to monitoring requirements.* (1) You may request approval to use alternatives to the continuous operating parameter monitoring listed in this section, as specified in §§ 63.11985(c)(4) and 63.8.

(2) You may request approval to monitor a different parameter than those established in § 63.11935(d) or to set unique monitoring parameters, as specified in §§ 63.11985(c)(5) and 63.8. Until permission to use an alternative monitoring parameter has been granted by the Administrator, you remain subject to the requirements of this subpart.

§ 63.11945 What performance testing requirements must I meet for process vents?

(a) *General.* For each control device used to meet the emission limits for process vents in Table 1 or 2 to this subpart, you must conduct the initial and periodic performance tests required in § 63.11925(d) and (e) and as specified in § 63.11896 using the applicable test methods and procedures specified in Table 8 to this subpart and paragraphs (b) through (d) of this section.

(b) *Process operating conditions.* You must conduct performance tests under the conditions specified in paragraphs (b)(1) through (3) of this section, as applicable. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. In all cases, a site-specific plan must be submitted to the Administrator for approval prior to testing in accordance with § 63.7(c). The test plan must include the emission profiles described in § 63.11925(g).

(1) *Continuous process vents.* For continuous process vents, you must conduct all performance tests at maximum representative operating conditions for the process. For continuous compliance, you must conduct subsequent performance tests within the range of operating limit(s) that were established for the control device during the initial or subsequent performance tests specified in § 63.11925(d) and (e). If an operating limit is a range, then you must conduct subsequent performance tests within the range of maximum or minimum operating limits for the control device, which result in highest emissions (*i.e.,* lowest emission reduction).

(2) *Batch process operations.* Testing must be conducted at absolute worst-case conditions or hypothetical worst-case conditions as specified in paragraph (c) of this section.

(3) *Combination of both continuous and batch unit operations.* You must conduct performance tests when the batch process vents are operating at absolute worst-case conditions or hypothetical worst-case conditions, as specified in paragraphs (c)(1) and (2) of this section, and at maximum representative operating conditions for the process. For continuous compliance, you must operate the control device as close as possible to your operating limit(s) for the control device established during the initial or subsequent performance tests specified in § 63.11925 (d) and (e). If an operating limit is a range, then you must operate the control device as close as possible to the maximum or minimum operating limit for the control device, whichever results in higher emissions (*i.e.,* lower emission reduction), unless the Administrator specifies or approves alternate operating conditions.

(c) *Batch worst-case conditions.* The absolute worst-case conditions for batch process operations must be characterized by the criteria presented in paragraph (c)(1) of this section. The hypothetical worst-case conditions for batch process operations must be characterized by the criteria presented in paragraph (c)(2) of this section.

(1) *Absolute worst-case conditions.* For batch process operations, absolute worst-case conditions are defined by the criteria presented in paragraph (c)(1)(i) of this section if the maximum load is the most challenging condition for the control device. Otherwise, absolute worst-case conditions are defined by the conditions in paragraph (c)(1)(ii) of this section. You must consider all relevant factors, including load and compound-specific characteristics in defining absolute worst-case conditions.

(i) A 1-hour period of time in which the inlet to the control device contains the highest HAP mass loading rate, in pounds per hour, capable of being vented to the control device. An emission profile as described in § 63.11925(g) must be used to identify the 1-hour period of maximum HAP loading.

(ii) The period of time when the HAP loading or stream composition (including non-HAP) is most challenging for the control device. These conditions include, but are not limited to the following:

(A) Periods when the stream contains the highest combined organic load, in pounds per hour, described by the emission profiles in § 63.11925(g).

(B) Periods when the streams contain HAP constituents that approach limits of solubility for scrubbing media.

(C) Periods when the streams contain HAP constituents that approach limits of adsorptivity for adsorption systems.

(2) *Hypothetical worst-case conditions.* For batch process operations, hypothetical worst-case conditions are simulated test conditions that, at a minimum, contain the highest hourly HAP load of emissions that would be predicted to be vented to the control device based on the emissions profiles described in paragraphs (c)(3)(ii) or (iii) of this section.

(3) *Emission profile.* For batch process operations, you must develop an emission profile for the vent to the control device that describes the characteristics of the vent stream at the inlet to the control device under worst-case conditions. The emission profile must be developed based on any one of the procedures described in paragraphs (c)(3)(i) through (iii) of this section.

(i) *Emission profile by process.* The emission profile must consider all batch emission episodes that could contribute to the vent stack for a period of time that is sufficient to include all processes venting to the stack and must consider production scheduling. The profile must describe the HAP load to the device that equals the highest sum of emissions from the episodes that can vent to the control device in any given hour.

Emissions per episode must be calculated using the procedures specified in § 63.11950. Emissions per episode must be divided by the duration of the episode only if the duration of the episode is longer than 1 hour.

(ii) *Emission profile by equipment.* The emission profile must consist of emissions that meet or exceed the highest emissions, in pounds per hour that would be expected under actual processing conditions. The profile must describe equipment configurations used to generate the emission events, volatility of materials processed in the equipment, and the rationale used to identify and characterize the emission events. The emissions may be based on using a compound more volatile than compounds actually used in the process(es), and the emissions may be generated from all equipment in the process(es) or only selected equipment.

(iii) *Emission profile by capture and control device limitation.* The emission profile must consider the capture and control system limitations and the highest emissions, in pounds per hour that can be routed to the control device, based on maximum flow rate and concentrations possible because of limitations on conveyance and control equipment (e.g., fans and lower explosive level alarms).

(d) *Concentration correction calculation.* If a combustion device is the control device and supplemental combustion air is used to combust the emissions, the concentration of total hydrocarbons, total organic HAP, vinyl chloride, and hydrogen chloride must be corrected as specified in paragraph (d)(1) or (2) of this section. If a control device other than a combustion device is used to comply with an outlet concentration emission limit for batch process vents, you must correct the actual concentration for supplemental gases as specified in paragraph (d)(3) of this section.

(1) Determine the concentration of total hydrocarbons, total organic HAP, vinyl chloride, or hydrogen chloride corrected to 3-percent oxygen (Cc) using Equation 1 of this section.

$$C_c = C_m \left(\frac{17.9}{20.9 - \%O_{2d}} \right) \qquad \text{(Eq. 1)}$$

Where:

C_c = Concentration of total hydrocarbons, total organic HAP, vinyl chloride, or hydrogen chloride corrected to 3-percent oxygen, dry basis, parts per million by volume.

C_m = Concentration of total hydrocarbons, total organic HAP, vinyl chloride, or hydrogen chloride, dry basis, parts per million by volume.

$\%O_{2d}$ = Concentration of oxygen, dry basis, percentage by volume.

(2) To determine the oxygen concentration, you must use the emission rate correction factor (or excess air), integrated sampling and analysis procedures of Method 3, 3A, or 3B at 40 CFR part 60, appendix A–2, or ANSI/ASME PTC 19.10–1981 (incorporated by reference, see § 63.14).

(3) Correct the measured concentration for supplemental gases using Equation 2 of this section. Process knowledge and representative operating data may be used to determine the fraction of the total flow due to supplemental gas.

$$C_a = C_m \left(\frac{Q_s + Q_a}{Q_a} \right) \qquad \text{(Eq. 2)}$$

Where:

C_a = Corrected outlet concentration of HAP, dry basis, parts per million by volume (ppmv).

C_m = Actual concentration of HAP measured at control device outlet, dry basis, ppmv.

Q_a = Total volumetric flow rate of all gas streams vented to the control device, except supplemental gases.

Q_s = total volumetric flow rate of supplemental gases.

§ 63.11950 What emissions calculations must I use for an emission profile?

When developing your emission profiles for batch process vents as required in § 63.11925(g), except as specified in paragraph (i) of this section, you must calculate emissions from episodes caused by vapor displacement, purging a partially filled vessel, heating, depressurization, vacuum operations, gas evolution, air drying, or empty vessel purging, using the applicable procedures in paragraphs (a) through (h) of this section.

(a) *Vapor displacement.* You must calculate emissions from vapor displacement due to transfer of material using Equation 1 of this section.

$$E = \left(\frac{V}{RT} \right) \sum_{i=1}^{n} P_i \left(MW_i \right) \qquad \text{(Eq. 1)}$$

Where:

E = Mass of HAP emitted.

V = Volume of gas displaced from the vessel.

R = Ideal gas law constant.

T = Temperature of the vessel vapor space; absolute.

P_i = Partial pressure of the individual HAP.

MW_i = Molecular weight of the individual HAP.

n = Number of HAP compounds in the emission stream.

i = Identifier for a HAP compound.

(b) *Gas sweep of a partially filled vessel.* You must calculate emissions from purging a partially filled vessel using Equation 2 of this section. The pressure of the vessel vapor space may be set equal to 760 millimeters of

mercury (mmHg). You must multiply the HAP partial pressure in Equation 2 of this section by a HAP-specific saturation factor determined in accordance with Equations 3 through 5 of this section. Solve Equation 3 of this section iteratively beginning with saturation factors (in the right-hand side of the equation) of 1.0 for each condensable compound. Stop iterating when the calculated saturation factors for all compounds are the same to two significant figures for subsequent iterations. Note that for multi-component emission streams, saturation factors must be calculated for all condensable compounds, not just the HAP.

$$E = \sum_{i=1}^{n} P_i MW_i \left(\frac{Vt}{RT}\right) \left(\frac{P_T}{P_T - \sum_{j=1}^{m}(P_j)}\right) \qquad \text{(Eq. 2)}$$

Where:

E = Mass of HAP emitted.
V = Purge flow rate of the noncondensable gas at the temperature and pressure of the vessel vapor space.
R = Ideal gas law constant.
T = Temperature of the vessel vapor space; absolute.
P_i = Partial pressure of the individual HAP at saturated conditions.
P_j = Partial pressure of individual condensable compounds (including HAP) at saturated conditions.
P_T = Pressure of the vessel vapor space.
MW_i = Molecular weight of the individual HAP.
t = Time of purge.
n = Number of HAP compounds in the emission stream.
i = Identifier for a HAP compound.
j = Identifier for a condensable compound.
m = Number of condensable compounds (including HAP) in the emission stream.

$$S_i = \frac{K_i A}{K_i A + V + \sum_{i=1}^{n} S_i V_i^{sat}} \qquad \text{(Eq. 3)}$$

$$V_i^{sat} = \frac{VP_i}{\left(P_T - \sum_{i=1}^{n} P_i\right)} \qquad \text{(Eq. 4)}$$

$$K_i = K_o \left(\frac{M_o}{M_i}\right)^{1/3} \qquad \text{(Eq. 5)}$$

Where:

S_i = Saturation factor for individual condensable compounds.
P_i = Partial pressure of individual condensable compounds at saturated conditions.
PT = Pressure of the vessel vapor space.
A = Surface area of liquid.
V = Purge flow rate of the noncondensable gas.
V_i^{sat} = Volumetric flow rate of individual condensable compounds at saturated vapor pressure.
K_i = Mass transfer coefficient of individual condensable compounds in the emission stream.
K_o = Mass transfer coefficient of reference compound (*e.g.,* 0.83 cm/s for water).
M_o = Molecular weight of reference compound (*e.g.,* 18.02 for water).
M_i = Molecular weight of individual condensable compounds in the emission stream.
n = Number of condensable compounds in the emission stream.

(c) *Heating.* You must calculate emissions caused by the heating of a vessel to a temperature lower than the boiling point using the procedures in paragraph (c)(1) of this section. If the contents of a vessel are heated to the

boiling point, you must calculate emissions using the procedures in paragraph (c)(2) of this section.

(1) If the final temperature to which the vessel contents are heated is lower than the boiling point of the HAP in the vessel, you must calculate the mass of HAP emitted per episode using Equation 6 of this section. The average gas space molar volume during the heating process is calculated using Equation 7 of this section. The difference in the number of moles of condensable in the vessel headspace between the initial and final temperatures is calculated using Equation 8 of this section.

$$E = MW_{HAP}\left[N_{avg}\ln\left[\frac{P_T - \sum_{i=1}^{n}\left(P_{i,1}\right)}{P_T - \sum_{i=1}^{n}\left(P_{i,2}\right)}\right] - \left(n_{i,2} - n_{i,1}\right)\right] \quad \text{(Eq. 6)}$$

Where:

E = Mass of HAP vapor displaced from the vessel being heated.

N_{avg} = Average gas space molar volume during the heating process.

P_T = Total pressure in the vessel.

$P_{i,1}$ = Partial pressure of the individual HAP compounds at initial temperature (T_1).

$P_{i,2}$ = Partial pressure of the individual HAP compounds at final temperature (T_2).

MW_{HAP} = Average molecular weight of the HAP compounds calculated using Equation 13 of this section.

$n_{i,1}$ = Number of moles of condensable in the vessel headspace at initial temperature (T_1).

$n_{i,2}$ = Number of moles of condensable in the vessel headspace at final temperature (T_2).

n = Number of HAP compounds in the emission stream.

ln = Natural logarithm.

$$N_{avg} = \frac{VP_T}{2R}\left(\frac{1}{T_1} + \frac{1}{T_2}\right) \quad \text{(Eq. 7)}$$

Where:

N_{avg} = Average gas space molar volume during the heating process.

V = Volume of free space in vessel.

P_T = Total pressure in the vessel.

R = Ideal gas law constant.

T_1 = Initial temperature of the vessel.

T_2 = Final temperature of the vessel.

$$\left(n_{i,2} - n_{i,1}\right) = \frac{V}{RT_2}\sum_{i=1}^{n}P_{i,2} - \frac{V}{RT_1}\sum_{i=1}^{n}P_{i,1} \quad \text{(Eq. 8)}$$

Where:

V = Volume of free space in vessel.

R = Ideal gas law constant.

T_1 = Initial temperature in the vessel.

T_2 = Final temperature in the vessel.

$P_{i,1}$ = Partial pressure of the individual HAP compounds at T_1.

$P_{i,2}$ = Partial pressure of the individual HAP compounds at T_2.

n = Number of HAP compounds in the emission stream.

(2) If the final temperature to which the vessel contents are heated is at the boiling point or higher, you must calculate emissions using the procedure in paragraphs (c)(2)(i) and (ii) of this section.

(i) To calculate the emissions from heating to the boiling point use Equations 9, 10 and 11 of this section. (Note that $Pa_2 = 0$ in the calculation of $\Delta\eta$ in Equation 10 of this section.)

$$E = \Delta\eta \times \frac{\sum_{i=1}^{n}P_i MW_{HAP}}{P_T - \sum_{j=1}^{m}\left(P_j\right)} \quad \text{(Eq. 9)}$$

Where:

E = Mass of HAP emitted.

$\Delta\eta$ = The number of moles of noncondensable displaced from the vessel, as calculated using Equation 10 of this section.

P_T = Pressure in the receiver.

P_i = Partial pressure of the individual HAP determined at the exit temperature of the condenser or at the conditions of the dedicated receiver.
P_j = Partial pressure of the individual condensable (including HAP) determined at the exit temperature of the condenser or at the conditions of the dedicated receiver.
n = Number of HAP compounds in the emission stream.
i = Identifier for a HAP compound.
j = Identifier for a condensable compound.
MW_{HAP} = The average molecular weight of HAP in vapor exiting the dedicated receiver, as calculated using Equation 11 of this section with partial pressures determined at the exit temperature and exit pressure conditions of the condenser or at the conditions of the dedicated receiver.
m = Number of condensable compounds (including HAP) in the emission stream.

$$\Delta\eta = \frac{V}{R}\left[\left(\frac{Pa_1}{T_1}\right) - \left(\frac{Pa_2}{T_2}\right)\right] \qquad \text{(Eq. 10)}$$

$$MW_{HAP} = \sum_{i=1}^{n} \frac{\left((P_i)_{T_1} + (P_i)_{T_2}\right) MW_i}{\sum_{i=1}^{n}\left((P_i)_{T_1} + (P_i)_{T_2}\right)} \qquad \text{(Eq. 11)}$$

Where:

$\Delta\eta$ = Number of moles of noncondensable gas displaced from the vessel.
V = Volume of free space in the vessel.
R = Ideal gas law constant.
T_1 = Initial temperature of vessel contents, absolute.
T_2 = Final temperature of vessel contents, absolute.
Pan = Partial pressure of noncondensable gas in the vessel headspace at initial (n=1) and final (n=2) temperature.
MW_{HAP} = The average molecular weight of HAP in vapor exiting the dedicated receiver.
$(P_i)Tn$ = Partial pressure of each HAP in the vessel headspace at initial (T_1) and final (T_2) temperature of the receiver.
MW_i = Molecular weight of the individual HAP.
n = Number of HAP compounds in the emission stream.
i = Identifier for a HAP compound.

(ii) While boiling, the vessel must be operated with a properly operated process condenser. An initial demonstration that a process condenser is properly operated must be conducted during the boiling operation and documented in the notification of compliance status report described in § 63.11985(a). You must either measure the liquid temperature in the receiver or the temperature of the gas stream exiting the condenser and show it is less than the boiling or bubble point of the HAP in the vessel; or perform a material balance around the vessel and condenser and show that at least 99 percent of the recovered HAP vaporized while boiling is condensed. This demonstration is not required if the process condenser is followed by a condenser acting as a control device or if the control device is monitored using a CEMS.

(d) *Depressurization*. You must calculate emissions from depressurization using Equation 12 of this section.

$$E = \frac{V}{RT} \times \ln\left(\frac{P_1 - \sum_{j=1}^{m}(P_j)}{P_2 - \sum_{j=1}^{m}(P_j)}\right) \times \sum_{i=1}^{n}(P_i)(MW_i) \qquad \text{(Eq. 12)}$$

Where:

E = Emissions.
V = Free volume in vessel being depressurized.
R = Ideal gas law constant.
T = Temperature of the vessel, absolute.
P_1 = Initial pressure in the vessel.
P_2 = Final pressure in the vessel.
P_j = Partial pressure of the individual condensable compounds (including HAP).
MW_i = Molecular weight of the individual HAP compounds.
n = Number of HAP compounds in the emission stream.
m = Number of condensable compounds (including HAP) in the emission stream.
i = Identifier for a HAP compound.
j = Identifier for a condensable compound.
ln = Natural logarithm.

(e) *Vacuum systems*. You must calculate emissions from vacuum systems using Equation 13 of this section if the air leakage rate is known or can be approximated. The receiving vessel is part of the vacuum system for purposes of this subpart.

$$E = \frac{(La)(t)}{MW_{nc}} \left(\frac{\sum_{i=1}^{n} P_i MW_i}{P_T - \sum_{j=1}^{m} (P_j)} \right) \quad \text{(Eq. 13)}$$

Where:

E = Mass of HAP emitted.

P_T = Absolute pressure of receiving vessel or ejector outlet conditions, if there is no receiver.

P_i = Partial pressure of the HAP at the receiver temperature or the ejector outlet conditions.

P_j = Partial pressure of condensable (including HAP) at the receiver temperature or the ejector outlet conditions.

La = Total air leak rate in the system, mass/time.

MW_{nc} = Molecular weight of noncondensable gas.

t = Time of vacuum operation.

MWi = Molecular weight of the individual HAP in the emission stream, with HAP partial pressures calculated at the temperature of the receiver or ejector outlet, as appropriate.

(f) *Gas evolution.* You must calculate emissions from gas evolution using Equation 13 in paragraph (e) of this section with mass flow rate of gas evolution, Wg, substituted for La.

(g) *Air drying.* You must calculate emissions from air drying using Equation 14 of this section:

$$E = B \times \left(\frac{PS_1}{100 - PS_1} - \frac{PS_2}{100 - PS_2} \right) \quad \text{(Eq. 14)}$$

Where:

E = Mass of HAP emitted.

B = Mass of dry solids.

PS_1 = HAP in material entering dryer, weight percent.

PS_2 = HAP in material exiting dryer, weight percent.

(h) *Empty vessel purging.* You must calculate emissions from empty vessel purging using Equation 15 of this section (Note: The term e-Ft/v can be assumed to be 0):

$$E = \left(\frac{V}{RT} \times \left[\sum_{i=1}^{n} (P_i)(MW_i) \right] (1 - e^{-Ft/v}) \right) \quad \text{(Eq. 15)}$$

Where:

V = Volume of empty vessel.

R = Ideal gas law constant.

T = Temperature of the vessel vapor space; absolute.

P_i = Partial pressure of the individual HAP at the beginning of the purge.

MW_i = Molecular weight of the individual HAP.

F = Flow rate of the purge gas.

t = Duration of the purge.

n = Number of HAP compounds in the emission stream.

i = Identifier for a HAP compound.

(i) *Engineering assessments.* You must conduct an engineering assessment to calculate HAP emissions or emission episodes from each process vent that are not due to vapor displacement, partially filled vessel purging, heating, depressurization, vacuum operations, gas evolution, air drying or empty vessel purging. An engineering assessment may also be used to support a finding that the emissions estimation equations in this section are inappropriate. All data, assumptions and procedures used in the engineering assessment must be documented, are subject to preapproval by the Administrator, and must be reported in the batch precompliance report. An engineering assessment should include, but is not limited to, the items listed in paragraphs (i)(1) through (4) of this section.

(1) Previous test results provided the tests are representative of current operating practices at the process unit.

(2) Bench-scale or pilot-scale test data representative of the process under representative operating conditions.

(3) Maximum flow rate, HAP emission rate, concentration, or other relevant parameter specified or implied within a permit limit applicable to the process vent.

(4) Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties. Examples of analytical methods include, but are not limited to the following:

(i) Use of material balances based on process stoichiometry to estimate maximum organic HAP concentrations.

(ii) Estimation of maximum flow rate based on physical equipment design such as pump or blower capacities.

(iii) Estimation of HAP concentrations based on saturation conditions.

§ 63.11955 What are my initial and continuous compliance requirements for other emission sources?

(a) Before opening any process component (including pre-polymerization reactors used in the manufacture of bulk resins) for any reason, the quantity of vinyl chloride must be reduced to an amount that occupies a volume of no more than 2.0 percent of the component's or equipment's containment volume, or 25 gallons, whichever is larger, at standard temperature and pressure.

(b) Before opening a polymerization reactor for any reason, the quantity of vinyl chloride is not to exceed 0.04 pounds per ton of PVC product, with the product determined on a dry solids basis.

(c) Any gas or vapor HAP removed from a process component in

accordance with paragraphs (a) and (b) of this section must be vented to a closed vent system and control device meeting the requirements of §§ 63.11925 through 63.11950.

(d) Each gasholder in vinyl chloride service must meet the requirements of paragraphs (d)(1) through (3) of this section.

(1) Each gasholder must be vented to a closed vent system and control device meeting the requirements of §§ 63.11925 through 63.11950.

(2) Each gasholder must operate with one or more of the following installed on the water seal to reduce emissions:

(i) Floating balls;

(ii) Hollow floating disks;

(iii) Oil layer; and/or

(iv) Floating mats.

(3) Each gasholder must have established operating procedures that include provisions for ensuring that the requirements of paragraph (d)(2) of this section are met at all times except during periods of maintenance or repair. The standard operating procedures must be developed and implemented and made available to the Administrator upon request.

§ 63.11956 What are my compliance requirements for ambient monitoring?

You must operate a reliable and accurate vinyl chloride monitoring system for detection of major leaks and identification of the general area of the affected source where a leak is located. A vinyl chloride monitoring system means a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromatography or, if you assume that all hydrocarbons measured are vinyl chloride, analyzes the samples with infrared spectrophotometry, flame ion detection, or an equivalent or alternative method. You must operate the vinyl chloride monitoring system according to a program that you develop for your affected source. You must submit a description of the program to the Administrator within 45 days of your compliance date, unless a waiver of compliance is granted by the Administrator, or the program has been approved and the Administrator does not request a review of the program. Approval of a program will be granted by the Administrator provided the Administrator finds:

(a) The location and number of points to be monitored and the frequency of monitoring provided for in the program are acceptable when they are compared with the number of pieces of equipment in vinyl chloride service and size and physical layout of the affected source.

(b) It contains a definition of leak which is acceptable when compared with the background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system. Measurements of background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system are to be included with the description of the program. The definition of leak for a given plant may vary among the different areas within the plant and is also to change over time as background concentrations in the plant are reduced.

(c) It contains an acceptable plan of action to be taken when a leak is detected.

(d) It provides for an acceptable calibration and maintenance schedule for the vinyl chloride monitoring system and portable hydrocarbon detector. For the vinyl chloride monitoring system, a daily span check must be conducted with a concentration of vinyl chloride equal to the concentration defined as a leak according to paragraph (b) of this section. The calibration must be done with either:

(1) A calibration gas mixture prepared from the gases specified in sections 7.2.1 and 7.2.2 of Method 106 at 40 CFR part 61, appendix B, and in accordance with section 10.1 of Method 106, or

(2) A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard must have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than ±5 percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration, and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in Sections 8.1 and 9.2 of Method 106. The requirements in Sections 7.2.3.1 and 7.2.3.2 of Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

§ 63.11960 What are my initial and continuous compliance requirements for stripped resin?

(a) *Emission limits.* You must meet the applicable vinyl chloride and total non-vinyl chloride organic HAP emission limits for stripped resin specified in Table 1 or 2 to this subpart.

(b) *Determination of total non-vinyl chloride organic HAP.* You must develop a facility-specific list of HAP that are expected to be present in each grade of resin produced by your PVCPU. This list must be continuously updated and must be available for inspection by the Administrator. This list must include the identification of each grade of resin produced, each HAP expected to be present in that grade of resin, and the CAS number for each HAP.

(1) For the purposes of demonstrating initial and continuous compliance as required in paragraphs (c) and (d) of this section, you must meet the requirements specified in paragraphs (b)(1)(i) and (b)(1)(ii) of this section.

(i) You must analyze each resin sample for all Table 10 HAP using the test methods specified in paragraph (e) of this section.

(ii) You must also analyze each resin sample for any HAP that are not a Table 10 HAP but are expected to be present in that resin sample based on your facility-specific list of HAP using the appropriate test method specified in paragraph (e) of this section.

(2) [Reserved]

(c) *Demonstration of initial compliance.* You must demonstrate initial compliance for each resin stripper or for each group of resin strippers used to process the same resin type.

(1) You must conduct an initial performance test for the resin stripper, measuring the concentration of vinyl chloride and total non-vinyl chloride organic HAP in the stripped resin at the outlet of each resin stripper as specified in paragraphs (c)(1)(i) through (iv) of this section.

(i) Use the test method(s) and procedures specified in paragraph (e) of this section.

(ii) Collect samples when the PVCPU is producing the resin grade of which you manufacture the most, based on the total mass per resin grade of a given resin type produced in the 12 months preceding the sampling event.

(iii) For continuous processes, during a 24-hour sampling period, for each resin grade produced, collect 1 grab sample at intervals of 8 hours or per grade of PVC produced, whichever is more frequent. Each sample must be taken as the resin flows out of the stripper.

(iv) For batch processes, during a 24-hour sampling period, for each batch of each resin grade produced, collect 1 grab sample for each batch. Each sample must be taken immediately following

the completion of the stripping operation.

(2) Demonstrate initial compliance with the vinyl chloride and total non-vinyl chloride organic HAP emission limits in Table 1 or 2 to this subpart as specified in paragraphs (c)(2)(i) and (ii) of this section.

(i) Calculate the 24-hour arithmetic average vinyl chloride and total non-vinyl chloride organic HAP concentrations for each stripper for each resin grade produced during the 24-hour sampling period, using the vinyl chloride and non vinyl-chloride HAP concentrations measured for the grab samples collected as specified in paragraph (c)(1)(iii) and (iv) of this section and using the calculation procedure specified in paragraph (f) of this section to determine the total non-vinyl chloride organic HAP concentration of each sample.

(ii) Demonstrate compliance with the vinyl chloride and total non-vinyl chloride organic HAP emission limits in Table 1 or 2 to this subpart based on the 24-hour arithmetic average concentrations calculated in either paragraph (c)(2)(ii)(A) or (B) of this section.

(A) If more than one resin grade was produced during the 24-hour sampling period, use Equation 1 of this section to calculate the 24-hour grade weighted arithmetic average vinyl chloride and total non-vinyl chloride organic HAP concentrations for each stripper, or for each group of strippers used to process the same type of resin, using the 24-hour average vinyl chloride and total non-vinyl chloride organic HAP concentrations calculated in paragraph (c)(2)(i) of this section and the mass of each resin grade produced during the 24-hour sampling period.

$$A_T = \frac{\Sigma_{i=1}^{n} P_{Gi} C_{Gi}}{Q_T} = \frac{P_{G_1} C_{G_1} + P_{G_2} C_{G_2} + \ \ldots + P_{Gn} C_{Gn}}{Q_T} \qquad \text{(Eq. 1)}$$

Where:

A_T = 24-hour average concentration of resin type T, parts per million by weight (dry basis).

P_{Gi} = Production of resin grade G_i, pounds.

C_{Gi} = 24-hour average concentration of vinyl chloride or total non-vinyl chloride organic HAP in resin grade G_i, ppmw.

Q_T = Total production of resin type T over the 24-hour sampling period, pounds.

(B) If only one resin grade was produced during the 24-hour sampling event, use the 24-hour arithmetic average vinyl chloride and total non-vinyl chloride organic HAP concentrations for the one resin grade calculated as specified in paragraph (c)(2)(i) of this section for each stripper or calculate the 24-hour arithmetic average vinyl chloride and total non-vinyl chloride organic HAP concentrations for all strippers used to process the one grade of resin.

(d) *Demonstration of continuous compliance.* You must demonstrate continuous compliance for each resin stripper or for each group of resin strippers used to process the same resin type.

(1) On a daily basis, you must measure the concentration of vinyl chloride in stripped resin using the test method(s) and procedures specified in paragraph (e) of this section, and the procedures specified in paragraphs (c)(1)(iii) and (iv) of this section.

(2) On a monthly basis, you must measure the concentration of total non-vinyl chloride organic HAP in stripped resin using the test method(s) and procedures specified in paragraph (e) of this section, and the procedures specified in paragraphs (c)(1)(iii) and (iv) of this section.

(3) You must demonstrate continuous compliance with the vinyl chloride and total non-vinyl chloride organic HAP emission limit for stripped resin in Table 1 or 2 to this subpart as specified in paragraphs (c)(2)(i) and (ii) of this section.

(e) *Test methods and procedures for determining concentration of vinyl chloride and total non-vinyl chloride organic HAP.* You must determine the concentration of vinyl chloride and total non-vinyl chloride organic HAP using the test methods and procedures specified in paragraphs (e)(1) through (3) of this section. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(1) For measuring total non-vinyl chloride organic HAP, you must use the methods specified in paragraphs (e)(1)(i) through (iv) of this section.

(i) SW–846–8260B (incorporated by reference, see § 63.14) for analysis of volatile organic compounds listed in Table 10 of this subpart.

(ii) SW–846–8270D (incorporated by reference, see § 63.14) for analysis of semivolatile organic compounds listed in table 10 of this subpart.

(iii) SW–846–8315A (incorporated by reference, see § 63.14) for analysis of aldehyde compounds listed in table 10 of this subpart.

(iv) SW–846–8015C (incorporated by reference, see § 63.14) for analysis of alcohol compounds listed in table 10 of this subpart.

(2) For measuring vinyl chloride, you must use Method 107 at 40 CFR part 61, appendix B.

(3) When using the methods specified in paragraphs (e)(1) and (2) of this section, for sample collection, preservation, transport, and analysis, you must minimize loss of HAP and maintain sample integrity.

(f) *Method for calculating total non-vinyl chloride organic HAP concentration.* For each stripped resin sample analyzed using the methods specified in paragraph (e) of this section, calculate the sum of the measured concentrations of each HAP analyzed as required in paragraphs (b)(1)(i) and (b)(1)(ii) of this section by using Equation 2 to this section.

$$C_{TNVCH} = \sum_{i=1}^{n} C_i \qquad \text{(Eq. 2)}$$

Where:

C_{TNVCH} = Concentration of total non-vinyl chloride organic HAP compounds in the stripped resin sample, in parts per million by weight (ppmw).

C_i = Concentration of individual HAP present in the stripped resin sample analyzed pursuant to paragraphs (b)(1)(i) and (b)(1)(ii) of this section excluding vinyl chloride, in ppmw, where a value of zero should be used for any HAP concentration that is below the detection limit.

§ 63.11965 What are my general compliance requirements for wastewater?

(a) The concentration of vinyl chloride and total non-vinyl chloride organic HAP in each process wastewater stream containing greater than the limits specified in Table 1 or 2 to this subpart, measured immediately as it leaves a piece of process equipment and before being mixed with any other process wastewater stream, must be reduced to the limits specified in Table 1 or 2 to this subpart. The applicable limits in

Table 1 or 2 to this subpart must be met before the process wastewater stream is mixed with any other process wastewater stream containing vinyl chloride or total non-vinyl chloride organic HAP concentrations less than the applicable limits specified in Table 1 or 2 to this subpart, before being exposed to the atmosphere, and before being discharged from the affected source.

(b) *Initial determination of process wastewater streams that need to be treated.* You must determine which process wastewater streams require treatment as specified in paragraphs (b)(1) and (2) of this section and meet the requirements of paragraphs (c) and (d) of this section.

(1) You must collect process wastewater samples as specified in paragraphs (b)(1)(i) and (ii) of this section.

(i) For treated process wastewater streams, you must collect process wastewater samples at the outlet of the treatment process and before the process wastewater stream is mixed with any other process wastewater stream containing vinyl chloride or total non-vinyl chloride organic HAP concentrations less than the applicable limits specified in Table 1 or 2 to this subpart, before being exposed to the atmosphere, and before being discharged from the affected source.

(ii) For untreated process wastewater streams, you must collect process wastewater samples at the location immediately as the stream leaves a piece of process equipment, before being mixed with any other process stream or process wastewater stream, before being exposed to the atmosphere, and before being discharged from the affected source.

(2) You must measure the concentration of vinyl chloride and total non-vinyl chloride organic HAP using the test methods and procedures specified in § 63.11980.

(c) *Requirements for process wastewater streams that must be treated.* Each process wastewater stream that has a vinyl chloride or total non-vinyl chloride organic HAP concentration equal to or greater than the limits specified in Table 1 or 2 to this subpart, determined pursuant to paragraph (a) of this section must be treated to reduce the concentration of vinyl chloride or total non-vinyl chloride organic HAP to below the applicable limits specified in Table 1 or 2 to this subpart. You must route wastewater streams through hard-piping to the treatment process and route the vent stream from the treatment process to a closed vent system and control device meeting the requirements of §§ 63.11925 through 63.11950. You must also meet the initial and continuous compliance requirements specified in § 63.11970(a) and § 63.11975.

(d) *Requirements for process wastewater streams that do not need to be treated.* For each process wastewater stream that has a vinyl chloride or total non-vinyl chloride organic HAP concentration less than the limits specified in Table 1 or 2 to this subpart, determined pursuant to paragraph (a) of this section, you must meet the initial and continuous compliance requirements specified in §§ 63.11970(b) and 63.11975(c).

(e) *Maintenance wastewater.* You must comply with the requirements specified in § 63.105 of subpart F of this part.

(f) *Determination of total non-vinyl chloride organic HAP.* You must develop a facility-specific list of HAP that are expected to be present in each process wastewater stream at your PVCPU. This list must be continuously updated and must be available for inspection by the Administrator. This list must include the identification of each HAP expected to be present in each process wastewater stream, and the CAS number for each HAP.

(1) For the purposes of demonstrating initial and continuous compliance as required in §§ 63.11970 and 63.11975 of this subpart, you must meet the requirements specified in paragraphs (f)(1)(i) and (ii) of this section.

(i) You must analyze each process wastewater sample for all HAP listed in Table 10 to this subpart using the test methods specified in § 63.11980(a)(2) and (3).

(ii) You must also analyze each process wastewater sample for any HAP that are not listed in Table 10 to this subpart but are expected to be present in that sample based on your facility-specific list of HAP using the appropriate test method specified in § 63.11980(a)(2).

(2) [Reserved]

§ 63.11970 What are my initial compliance requirements for process wastewater?

(a) *Demonstration of initial compliance for process wastewater streams that must be treated.* For each process wastewater stream that must be treated as specified in § 63.11965(b) and (c), you must conduct an initial performance test for the wastewater treatment process, measuring the concentration of vinyl chloride and total non-vinyl chloride organic HAP in the wastewater stream at the outlet of the wastewater treatment process before the wastewater is exposed to the atmosphere, mixed with any other process stream, and before being discharged from the affected facility, using the test method(s) and procedures specified in § 63.11980(a).

(b) *Demonstration of initial compliance for process wastewater streams that are not required to be treated.* For each process wastewater stream that has a vinyl chloride or total non-vinyl chloride organic HAP concentration less than the limits specified in Tables 1 or 2 to this subpart, you must use the measurement specified in § 63.11965(b)(1)(ii) to demonstrate initial compliance.

§ 63.11975 What are my continuous compliance requirements for process wastewater?

(a) For each process wastewater stream that must be treated to reduce the concentration of vinyl chloride or total non-vinyl chloride organic HAP as specified in § 63.11965(b) and (c), you must demonstrate continuous compliance as specified in paragraph (b) of this section. For each process wastewater stream for which you initially determine in § 63.11970(b) that treatment is not required to reduce either vinyl chloride or total non-vinyl chloride organic HAP concentration, you must demonstrate continuous compliance as specified in paragraph (c) of this section.

(b) For each process wastewater stream that must be treated according to § 63.11965(b), you must demonstrate continuous compliance with the emission limits for vinyl chloride and total non-vinyl chloride organic HAP specified in Table 1 or 2 to this subpart by following the procedures specified in paragraphs (b)(1) and (2) of this section.

(1) Following your demonstration of initial compliance in § 63.11970(a), make monthly measurements of the vinyl chloride and total non-vinyl chloride organic HAP concentrations using the procedures and methods specified in § 63.11965(b)(1) and (2).

(2) You must demonstrate continuous compliance with the emission limits in Table 1 or 2 to this subpart on a monthly basis, using the monthly concentration measurement specified in paragraph (b)(1) of this section.

(c) For each wastewater stream for which you initially determine in § 63.11970(b) that treatment is not required to reduce the vinyl chloride or total non-vinyl chloride organic HAP concentration, you must demonstrate continuous compliance as specified in paragraphs (c)(1) and (2) of this section.

(1) Conduct annual performance tests, measuring the vinyl chloride and total

non-vinyl chloride organic HAP concentrations using the procedures and methods specified in § 63.11965(b)(1) and (2).

(2) If any annual performance test conducted as specified in paragraph (c)(1) of this section results in a concentration of vinyl chloride or total non-vinyl chloride organic HAP in the process wastewater stream that is greater than or equal to the emission limits in Table 1 or 2 to this subpart, then you must meet the requirements of § 63.11965(c) and you must demonstrate initial and continuous compliance as specified in § 63.11970 and this section.

§ 63.11980 What are the test methods and calculation procedures for process wastewater?

(a) *Performance test methods and procedures.* You must determine the concentration of vinyl chloride and total non-vinyl chloride organic HAP using the test methods and procedures specified in paragraphs (a)(1) through (4) of this section. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(1) You must conduct performance tests during worst-case operating conditions for the PVCPU when the process wastewater treatment process is operating as close as possible to maximum operating conditions. If the wastewater treatment process will be operating at several different sets of operating conditions, you must supplement the testing with additional testing, modeling or engineering assessments to demonstrate compliance with the emission limits.

(2) For measuring total non-vinyl chloride organic HAP, you must conduct sampling and analysis using the methods specified in paragraphs (a)(2)(i) through (iv) of this section.

(i) SW–846–8260B (incorporated by reference, see § 63.14) for analysis of volatile organic compounds listed in Table 10 of this subpart.

(ii) SW–846–8270D (incorporated by reference, see § 63.14) for analysis of semivolatile organic compounds.

(iii) SW–846–8315A (incorporated by reference, see § 63.14) for analysis of aldehyde compounds.

(iv) SW–846–8015C (incorporated by reference, see § 63.14) for analysis of alcohol compounds.

(3) For measuring vinyl chloride, you must use Method 107 at 40 CFR part 61, appendix B.

(4) When using the methods in paragraphs (a)(2) and (3) of this section, you must meet the requirements in paragraphs (a)(4)(i) through (iii) of this section.

(i) Sample collection may consist of grab or composite samples.

(ii) Samples must be taken before the process wastewater stream is exposed to the atmosphere.

(iii) You must ensure that sample collection, preservation, transport, and analysis minimizes loss of HAP and maintains sample integrity.

(b) Method for calculating total non-vinyl chloride organic HAP concentration. For each process wastewater stream analyzed using the methods specified in paragraph (a) of this section, calculate the sum of the measured concentrations of each HAP analyzed as required in § 63.11965(f)(1) by using Equation 1 to this section.

$$C_{TNVCH} = \sum_{i=1}^{n} C_i \qquad \text{(Eq. 1)}$$

Where:

C_{TNVCH} = Concentration of total non-vinyl chloride organic HAP, in parts per million by weight (ppmw).

C_i = Concentration of individual HAP present in the sample analyzed pursuant to § 63.11965(f)(1) excluding vinyl chloride, in ppmw, where a value of zero should be used for any HAP concentration that is below the detection limit.

Notifications, Reports and Records

§ 63.11985 What notifications and reports must I submit and when?

In addition to the notifications and reports required in subpart A of this part, as specified in Table 4 to this subpart, you must submit the additional information and reports specified in paragraphs (a) through (c) of this section, as applicable.

(a) *Notification of compliance status.* When submitting the notification of compliance status required in § 63.9(h), you must also include the information specified in paragraphs (a)(1) through (9) of this section, as applicable.

(1) You must include an identification of the storage vessels subject to this subpart, including the capacity and liquid stored for each vessel. You must submit the information specified in paragraph (a)(2) of this section for each pressure vessel.

(2) You must include the information specified in § 63.1039(a) for equipment leaks.

(3) You must include an identification of the heat exchange systems that are subject to the requirements of this subpart.

(4) You must include the operating limit for each monitoring parameter identified for each control device used to meet the emission limits in Table 1 or 2 to this subpart, as determined pursuant to § 63.11935(d). This report must include the information in § 63.11935(d)(2), as applicable.

(5) You must include the records specified in paragraphs (a)(5)(i) through (iii) of this section, as applicable, for process vents.

(i) You must include the performance test records specified in § 63.11990(f)(1), as applicable. These reports must include one complete test report for each test method used for each process vent. A complete test report must include a brief process description, sampling site description, description of sampling and analysis procedures and any modifications to standard procedures, quality assurance procedures, record of operating conditions during the test, record of preparation of standards, record of calibrations, raw data sheets for field sampling, raw data sheets for field and laboratory analyses, documentation of calculations and any other information required by the test method. For additional tests performed for the same kind of emission point using the same method, the results and any other information required in applicable sections of this subpart must be submitted, but a complete test report is not required.

(ii) You must include the information specified in paragraphs (a)(5)(ii)(A) through (C) of this section for batch process vent operations.

(A) Descriptions of worst-case operating and/or testing conditions for control devices including results of emissions profiles.

(B) Calculations used to demonstrate initial compliance according to §§ 63.11945 and 63.11950, including documentation of the proper operation of a process condenser(s) as specified in § 63.11950(c)(2)(ii).

(C) Data and rationale used to support an engineering assessment to calculate emissions in accordance with § 63.11950(i).

(iii) If you use a control device other than those listed in § 63.11940 for your process vent, then you must include a description of the parameters to be monitored to ensure the control device is operated in conformance with its design and achieves the specified emission limitation; an explanation of the criteria used to select the parameter; and a description of the methods and procedures that will be used to demonstrate that the parameter indicates proper operation of the control device, the schedule for this demonstration, and a statement that you will establish an operating limit for the

monitored parameter as specified in paragraph (a)(4) of this section.

(6) [Reserved]

(7) You must include the records specified in paragraphs (a)(7)(i) and (ii) of this section, as applicable, for resin strippers.

(i) You must include an identification of each resin stripper and resin type subject to the requirements of this subpart.

(ii) You must include results of the initial testing used to determine initial compliance with the stripped resin limits in Table 1 or 2 to this subpart.

(8) You must include the records specified in paragraphs (a)(8)(i) and (ii) of this section, as applicable, for process wastewater.

(i) You must include an identification of each process wastewater stream subject to the requirements of this subpart, and the results of your determination for each stream as to whether it must be treated to meet the limits of Table 1 or 2 to this subpart. You must also include a description of the treatment process to be used for each process wastewater stream that requires treatment.

(ii) You must include results of the initial sampling used to determine initial compliance with the vinyl chloride and total non-vinyl chloride organic HAP limits in Table 1 or 2 to this subpart.

(9) You must include a certification of compliance, signed by a responsible official, as applicable that states the following:

(i) ''This facility complies with the requirements in this subpart for storage vessels.''

(ii) ''This facility complies with the requirements in this subpart for equipment leaks.''

(iii) ''This facility complies with the requirements in this subpart for heat exchange systems.''

(iv) ''This facility complies with the requirements in this subpart for HAP emissions from process vents.''

(v) ''This facility complies with the requirements in this subpart for other emission sources.''

(vi) ''This facility complies with the requirements in this subpart for the stripped resin.''

(vii) ''This facility complies with the requirements in this subpart for wastewater.''

(b) *Compliance reports.* When submitting the excess emissions and continuous monitoring system performance report and summary report required in § 63.10(e)(3), you must also include the information specified in paragraphs (b)(1) through (12) of this section, as applicable. This report is referred to in this subpart as your compliance report.

(1) You must include a copy of the inspection record specified in § 63.11990(b)(2) for each storage vessel when a defect, failure, or leak is detected. You must also include a copy of the applicable information specified in § 63.1039(b)(5) through (8) of subpart UU of this part for each pressure vessel.

(2) You must include the information specified in § 63.1039(b) for equipment leaks, except for releases from pressure relief devices. For any releases from pressure relief devices, you must submit the report specified in paragraph (c)(7) of this section instead of the information specified in § 63.1039(b)(4) of subpart UU of this part.

(3) You must include the information specified in paragraphs (b)(3)(i) through (vi) of this section for heat exchange systems.

(i) The number of heat exchange systems in HAP service.

(ii) The number of heat exchange systems in HAP service found to be leaking.

(iii) A summary of the monitoring data that indicate a leak, including the number of leaks determined to be equal to or greater than the leak definition.

(iv) If applicable, the date a leak was identified, the date the source of the leak was identified and the date of repair.

(v) If applicable, a summary of each delayed repair, including the original date and reason for the delay and the date of repair, if repaired during the reporting period.

(vi) If applicable, an estimate of total VOC or vinyl chloride emissions for each delayed repair over the reporting period.

(4) You must include the records specified in paragraphs (b)(4)(i) through (iii) of this section, as applicable, for process vents, resin strippers, and wastewater.

(i) Deviations using CEMS or CPMS. For each deviation from an emission limit or operating limit where a CEMS or CPMS is being used to comply with the process vent emission limits in Table 1 or 2 to this subpart, you must include the information in paragraphs (b)(4)(i)(A) through (E) of this section.

(A) For CEMS, the 3-hour block average value calculated for any period when the value is higher than an emission limit in Table 1 or 2 to this subpart or when the value does not meet the data availability requirements defined in § 63.11890(c).

(B) For CPMS, the average value calculated for any day (based on the data averaging periods for compliance specified in Table 5 to this subpart) that does not meet your operating limit established according to § 63.11935(d) or that does not meet the data availability requirements specified in § 63.11890(c).

(C) The cause for the calculated emission level or operating parameter level to not meet the established emission limit or operating limit.

(D) For deviations caused by lack of monitoring data, the duration of periods when monitoring data were not collected.

(E) Operating logs of batch process operations for each day during which the deviation occurred, including a description of the operating scenario(s) during the deviation.

(ii) New operating scenario. Include each new operating scenario that has been operated since the time period covered by the last compliance report and has not been submitted in the notification of compliance status report or a previous compliance report. For each new operating scenario, you must provide verification that the operating conditions for any associated control or treatment device have not been exceeded and constitute proper operation for the new operating scenario. You must provide any required calculations and engineering analyses that have been performed for the new operating scenario. For the purposes of this paragraph (b)(4)(ii), a revised operating scenario for an existing process is considered to be a new operating scenario when one or more of the data elements listed in § 63.11990(e)(4) have changed.

(iii) Process changes. You must document process changes, or changes made to any of the information submitted in the notification of compliance status report or a previous compliance report, that is not within the scope of an existing operating scenario, in the compliance report. The notification must include all of the information in paragraphs (b)(4)(iii)(A) through (C) of this section.

(A) A description of the process change.

(B) Revisions to any of the information reported in the original notification of compliance status report as provided in paragraph (a) of this section.

(C) Information required by the notification of compliance status report, as provided in paragraph (a) of this section, for changes involving the addition of processes, components, or equipment at the affected source.

(5) You must submit the applicable information specified in paragraphs (b)(5)(i) through (iii) of this section for process vents.

(i) For catalytic thermal oxidizers for which you have selected the alternative monitoring specified in § 63.11940(b)(3), results of the annual catalyst sampling and inspections required by § 63.11940(b)(3)(i) and (ii) including any subsequent corrective actions taken.

(ii) For regenerative adsorbers, results of the adsorber bed outlet volatile organic compounds concentration measurements specified in § 63.11940(d)(7).

(iii) For non-regenerative adsorbers, results of the adsorber bed outlet volatile organic compounds concentration measurements specified in § 63.11940(e)(2).

(6) You must include the records specified in § 63.11990(j) for other emission sources.

(7) For resin stripper operations, you must include results of daily vinyl chloride and monthly total non-vinyl chloride organic HAP concentration results for each resin type produced within the PVCPU that did not meet the stripped resin emission limits in Table 1 or 2 to this subpart, as applicable.

(8) You must include the information specified in paragraphs (b)(8)(i) and (ii) of this section for your wastewater streams.

(i) Results of daily vinyl chloride and monthly total non-vinyl chloride organic HAP concentration results for each process wastewater stream discharged from the affected source that did not meet the process wastewater emission limits in Tables 1 or 2 to this subpart.

(ii) If you must comply with § 63.11965, then you must include any other applicable information that is required by the reporting requirements specified in § 63.146.

(9) For closed vent systems subject to the requirements of § 63.11930, you must include the information specified in paragraphs (b)(9)(i) through (iv) of this section, as applicable.

(i) As applicable, records as specified in § 63.11930(g)(1)(i) for all times when flow was detected in the bypass line, the vent stream was diverted from the control device, or the flow indicator was not operating.

(ii) As applicable, records as specified in § 63.11930(g)(1)(ii) for all occurrences of all periods when a bypass of the system was indicated (the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out, and records of any car-seal that has been broken).

(iii) Records of all times when monitoring of the system was not performed as specified in § 63.11930(d) and (e), or repairs were not performed as specified in § 63.11930(f), or records were not kept as specified in § 63.11930(g)(2).

(iv) Records of each time an alarm on a closed vent system operating in vacuum service is triggered as specified in § 63.11930(h) including the cause for the alarm and the corrective action taken.

(10) Closed vent system in vacuum service, bypass deviation, or pressure vessel closure device deviation report. If any pressure vessel closure device or closed vent system that contains a bypass has directly discharged to the atmosphere, or any closed vent system that is designed to be in vacuum service and is operating and but not in vacuum service, as specified in §§ 63.11910(c)(4), 63.11930(c) or 63.11930(h), you must submit to the Administrator the following information:

(i) The source, nature and cause of the discharge.

(ii) The date, time and duration of the discharge.

(iii) An estimate of the quantity of vinyl chloride and total HAP emitted during the discharge and the method used for determining this quantity.

(iv) The actions taken to prevent this discharge.

(v) The measures adopted to prevent future such discharges

(11) Affirmative defense report. If you seek to assert an affirmative defense, as provided in § 63.11895, then you must submit a written report as specified in § 63.11895(b) to demonstrate, with all necessary supporting documentation, that you have met the requirements set forth in § 63.11895(a).

(12) Overlap with Title V reports. Information required by this subpart, which is submitted with a Title V periodic report, does not need to be included in a subsequent compliance report required by this subpart or subpart referenced by this subpart. The Title V report must be referenced in the compliance report required by this subpart.

(c) *Other notifications and reports.* You must submit the other notification and reports, as specified in paragraphs (c)(1) through (9) of this section, as applicable.

(1) Notification of inspection. To provide the Administrator the opportunity to have an observer present, you must notify the Administrator at least 30 days before an inspection required by § 63.11910(a)(3). If an inspection is unplanned and you could not have known about the inspection 30 days in advance, then you must notify the Administrator at least 7 days before the inspection. Notification must be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, the notification including the written documentation may be made in writing and sent so that it is received by the Administrator at least 7 days before the inspection. If a delegated state or local agency is notified, you are not required to notify the Administrator. A delegated state or local agency may waive the requirement for notification of inspections.

(2) Batch precompliance report. You must submit a batch precompliance report at least 6 months prior to the compliance date of this subpart that includes a description of the test conditions, data, calculations and other information used to establish operating limits according to § 63.11935(d) for all batch operations. If you use an engineering assessment as specified in § 63.11950(i), then you must also include data or other information supporting a finding that the emissions estimation equations in § 63.11950(a) through (h) are inappropriate. If the EPA disapproves the report, then you must still be in compliance with the emission limitations and work practice standards of this subpart by your compliance date. To change any of the information submitted in the report, you must notify the EPA 60 days before you implement the planned change.

(3) Other control device reporting provisions. If you are using a control device other than those listed in this subpart, then you must submit the information as specified in paragraphs (c)(3)(i) through (iii) of this section.

(i) A description of the proposed control device.

(ii) A description of the parameter(s) to be monitored to ensure the control device is operated in conformance with its design and achieves the performance level as specified in this subpart and an explanation of the criteria used to select the parameter(s).

(iii) The frequency and content of monitoring, recording, and reporting if monitoring and recording is not continuous, or if the compliance report information, as specified in paragraph (b)(4)(i)(A) of this section, will not contain 3-hour block average values when the monitored parameter value does not meet the established operating limit. The rationale for the proposed monitoring, recording and reporting system must be included.

(4) Request for approval to use alternative monitoring methods. Prior to your initial notification of compliance status, you may submit requests for approval to use alternatives to the

continuous operating parameter monitoring specified in this rule, as provided for in § 63.11940(h), following the same procedure as specified in § 63.8. The information specified in paragraphs (c)(4)(i) and (ii) of this section must be included.

(i) A description of the proposed alternative system.

(ii) Information justifying your request for an alternative method, such as the technical or economic infeasibility, or the impracticality, of the affected source using the required method.

(5) Request for approval to monitor alternative parameters. Prior to your initial notification of compliance status, you may submit requests for approval to monitor a different parameter than those established in § 63.11935(d), following the same procedure as specified for alternative monitoring methods in § 63.8. The information specified in paragraphs (c)(5)(i) through (iii) of this section must be included in the request.

(i) A description of the parameter(s) to be monitored to ensure the control technology or pollution prevention measure is operated in conformance with its design and achieves the specified emission limit and an explanation of the criteria used to select the parameter(s).

(ii) A description of the methods and procedures that will be used to demonstrate that the parameter indicates proper operation of the control device, the schedule for this demonstration, and a statement that you will establish an operating limit for the monitored parameter(s) as part of the notification of compliance status if required under this subpart, unless this information has already been submitted.

(iii) The frequency and content of monitoring, recording, and reporting, if monitoring and recording is not continuous. The rationale for the proposed monitoring, recording, and reporting system must be included.

(6) [Reserved]

(7) Pressure relief device deviation report. If any pressure relief device in HAP service has discharged to the atmosphere as specified in § 63.11915(c), then you must submit to the Administrator within 10 days of the discharge the following information:

(i) The source, nature, and cause of the discharge.

(ii) The date, time, and duration of the discharge.

(iii) An estimate of the quantity of vinyl chloride and total HAP emitted during the discharge and the method used for determining this quantity.

(iv) The actions taken to prevent this discharge.

(v) The measures adopted to prevent future such discharges.

(8) Commencing and ceasing operation of continuous emissions monitoring systems. Before starting or stopping the use of CEMS you must notify the Administrator as specified in § 63.11935(b)(7).

(9) *Data submittal.* (i) Within 60 days after the date of completing each performance test (see § 63.2) required by this subpart, you must submit the results of performance tests electronically to the EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through the EPA's Central Data Exchange (CDX) (*http://www.epa.gov/cdx*). Performance test data must be submitted in the file format generated through use of the EPA's Electronic Reporting Tool (ERT) (see *http://www.epa.gov/ttn/chief/ert/ert_tool.html*). Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically to WebFIRE. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives) to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404–02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX as described earlier in this paragraph. At the discretion of the delegated authority, you must also submit these reports, including the confidential business information, to the delegated authority in the format specified by the delegated authority.

(ii) Within 60 days after the date of completing each CEMS performance evaluation test (see § 63.2), you must submit the relative accuracy test audit data electronically into the EPA's CDX by using the ERT, as mentioned in paragraph (c)(9)(i) of this section. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically to the EPA's CDX.

(iii) All reports required by this subpart not subject to the requirements in paragraphs (c)(9)(i) and (ii) of this section must be sent to the Administrator at the appropriate address listed in § 63.13. The Administrator or the delegated authority may request a report in any form suitable for the specific case (*e.g.,* by electronic media such as Excel spreadsheet, on CD or hard copy). The Administrator retains the right to require submittal of reports subject to paragraphs (c)(9)(i) and (ii) of this section in paper format.

§ 63.11990 What records must I keep?

You must keep records as specified in paragraphs (a) through (j) of this section, as applicable.

(a) *Copies of reports.* You must keep a copy of each notification and report that you submit to comply with this subpart, including all documentation supporting any notification or report. You must also keep copies of the current versions of the site-specific performance evaluation test plan, site-specific monitoring plan, and the equipment leak detection and repair plan.

(b) *Storage vessels.* For storage vessels, you must maintain the records specified in paragraphs (b)(1) through (6) of this section.

(1) You must keep a record of the dimensions of the storage vessel, an analysis of the capacity of the storage vessel and an identification of the liquid stored.

(2) Inspection records for fixed roofs complying with § 63.11910 including the information specified in paragraphs (b)(2)(i) and (ii) of this section.

(i) Record the date of each inspection required by § 63.11910(a)(3).

(ii) For each defect detected during an inspection required by § 63.11910(a)(3), record the location of the defect, a description of the defect, the date of detection and corrective action taken to repair the defect. In the event that repair of the defect is delayed in accordance with § 63.11910(a)(4)(ii), also record the reason for the delay and the date that completion of repair of the defect is expected.

(3) [Reserved]

(4) For pressure vessels, you must keep the records specified in paragraph (c) of this section for each pressure vessel.

(5) For internal and external floating roof storage vessels, you must maintain the records required in § 63.1065 of subpart WW of this part.

(6) For fixed roof storage vessels that route emissions through a closed vent system to a control device, during periods of planned routine maintenance of a control device, record the day and time at which planned routine maintenance periods begin and end, and the type of maintenance performed on the control device. If you need more than 240 hr/yr, keep a record that explains why additional time up to 360

hr/yr was needed and describes how you minimized the amount of additional time needed.

(c) *Equipment leaks.* For equipment leaks, you must maintain the records specified in § 63.1038 of subpart UU of this part for equipment leaks and a record of the information specified in § 63.11930(g)(4) for monitoring instrument calibrations conducted according to § 63.11930(e)(2).

(d) *Heat exchange systems.* For a heat exchange system subject to this subpart, you must keep the records specified in paragraphs (d)(1) through (6) of this section.

(1) Identification of all heat exchangers at the facility and the measured or estimated average annual HAP concentration of process fluid or intervening cooling fluid processed in each heat exchanger.

(2) Identification of all heat exchange systems that are in HAP service. For each heat exchange system that is subject to this subpart, you must include identification of all heat exchangers within each heat exchange system, identification of the individual heat exchangers in HAP service within each heat exchange system, and for closed-loop recirculation systems, the cooling tower included in each heat exchange system.

(3) Identification of all heat exchange systems that are exempt from the monitoring requirements according to the provisions in § 63.11920(b) and the provision under which the heat exchange system is exempt.

(4) Results of the following monitoring data for each monitoring event:

(i) Date/time of event.

(ii) Heat exchange exit line flow or cooling tower return line flow at the sampling location, gallons/minute.

(iii) Monitoring method employed.

(iv) The measured cooling water concentration for each of target analyte (parts per billion by weight).

(v) Calibration and recovery information identified in the test method used.

(5) The date when a leak was identified and the date when the heat exchanger was repaired or taken out of service.

(6) If a repair is delayed, the reason for the delay, the schedule for completing the repair, and the estimate of potential emissions for the delay of repair.

(e) *Process vent monitoring.* You must include the records specified in paragraphs (e)(1) through (4) of this section, as applicable, for process vent monitoring.

(1) Continuous records. Where this subpart requires a continuous record using CEMS or CPMS, you must maintain, at a minimum, the records specified in § 63.10(b)(2)(vii)(A).

(2) Excluded data. In any average computed to determine compliance, you must exclude monitoring data recorded during periods specified in paragraphs (e)(2)(i) through (iii) of this section.

(i) Periods of non-operation of the process unit (or portion thereof), resulting in cessation of the emissions to which the monitoring applies.

(ii) Periods of no flow to a control device.

(iii) Monitoring system malfunctions, repairs associated with monitoring system malfunctions or required monitoring system quality assurance or control activities, as specified in § 63.11890(c)(2).

(3) Records of calculated emission and operating parameter values. You must retain for 5 years, a record of CEMS and CPMS data as specified in paragraphs (e)(3)(i) and (ii) of this section, unless an alternative recordkeeping system has been requested and approved.

(i) Except as specified in paragraph (e)(3)(ii) of this section, retain for 5 years, the records of the average values for each continuously monitored operating parameter and pollutant specified in §§ 63.11925(e)(3)(ii) and 63.11925(e)(4)(ii)(B) for CEMS and CPMS.

(ii) In lieu of calculating and recording the average value specified in paragraphs (e)(3)(i) of this section, if all 1-hour averages specified in § 63.11935(e) demonstrate compliance with your parameter operating limit or the applicable pollutant emission limit in Table 1 or 2 to this subpart for the block average period, you may record a statement that all recorded 1-hour averages met the operating limit or emission limit, as applicable, and retain for 5 years this statement and all recorded CPMS or CEMS data for the block average period.

(4) Information to be included in records. You must keep records of each operating scenario as specified in paragraphs (e)(4)(i) through (viii) of this section, as applicable.

(i) You must keep a schedule or log of operating scenarios, updated each time a different operating scenario is put into effect.

(ii) A description of the process and the type of process components used.

(iii) An identification of related process vents including their associated emissions episodes.

(iv) The applicable control requirements of this subpart for process vents.

(v) The control device, including a description of operating and testing conditions.

(vi) Combined emissions that are routed to the same control device.

(vii) The applicable monitoring requirements of this subpart and any operating limit that assures compliance for all emissions routed to the control device.

(viii) Calculations and engineering analyses required to demonstrate compliance.

(f) *Process vents.* You must include the records specified in paragraphs (f)(1) and (2) of this section, as applicable, for process vents.

(1) Records of performance tests as required in § 63.10(b)(2)(viii). You must also collect the applicable control device operating parameters required in § 63.11940 over the full period of the performance test.

(2) If you use a control device to comply with this subpart and you are required to use CPMS, then you must keep up-to-date and readily accessible records for your process vents as specified in paragraphs (f)(2)(i) through (iv) of this section, as applicable.

(i) If you use a flow indicator, then you must keep records of periods of no flow to the control device, including the start and stop time and dates of periods of flow and no flow.

(ii) If you use a catalytic oxidizer for which you have selected the alternative monitoring specified in § 63.11940(b)(3), then you must also maintain records of the results of the annual catalyst sampling and inspections required by § 63.11940(b)(3)(i) and (ii) including any subsequent corrective actions taken.

(iii) If you use a regenerative adsorber as specified in § 63.11940(d), then the records specified in paragraphs (f)(2)(iii)(A) through (H) of this section, as applicable, must be kept.

(A) Records of total regeneration stream mass flow for each adsorber-bed regeneration cycle.

(B) Records of the temperature of the adsorber bed after each regeneration and within 15 minutes of completing any cooling cycle.

(C) For non-vacuum and non-steam regeneration systems, records of the temperature of the adsorber bed during each regeneration except during any temperature regulating (cooling or warming to bring bed temperature closer to vent gas temperature) portion of the regeneration cycle.

(D) If adsorber regeneration vacuum is monitored pursuant to § 63.11940(d)(4), then you must keep records of the

vacuum profile over time and the amount of time the vacuum level is below the minimum vacuum target for each adsorber-bed regeneration cycle.

(E) Records of the regeneration frequency and duration.

(F) Daily records of the verification inspections, including the visual observations and/or any activation of an automated alarm or shutdown system with a written entry into a log book or other permanent form of record.

(G) Records of the maximum volatile organic compound or HAP outlet concentration observed over the last 5 minutes of the adsorption cycle for each adsorber bed. Records must be weekly or for every regeneration cycle if the regeneration cycle is greater than 1 week.

(H) Records of the date and time the adsorbent had last been replaced.

(iv) If you use a non-regenerative adsorber as specified in § 63.11940(e), then the records specified in paragraphs (f)(2)(iv)(A) through (C) of this section, as applicable, must be kept.

(A) A record of the average life of the bed, as determined by § 63.11940(e)(1), including the date the average life was determined.

(B) Daily, weekly, or monthly records of the maximum volatile organic compound or HAP outlet concentration, as specified by § 63.11940(e)(2).

(C) Records of bed replacement including the date and time the adsorbent had last been replaced, and the date and time in which breakthrough is detected.

(g) *Closed vent systems.* You must keep the records specified in paragraphs (g)(1) through (6) of this section, and you must record any additional information as specified in § 63.11930, as applicable.

(1) Each alarm triggered because flow was detected in a bypass as specified in § 63.11930(g)(1)(i).

(2) Inspections of seals or closure mechanisms as specified in § 63.11930(g)(1)(ii).

(3) Copies of compliance reports for closed vent system leak inspections as specified in § 63.11985(b)(9) and § 63.11930(g)(2) and (3).

(4) Instrument calibration records as specified in § 63.11930(g)(4).

(5) Unsafe-to-inspect equipment as specified in § 63.11930(g)(5).

(6) Pressure alarms as specified by § 63.11930(h)(2) and (3).

(h) *Resin strippers.* For resin strippers, you must maintain the records specified in paragraphs (h)(1) and (2) of this section.

(1) All resin sampling data, including daily measurements of the concentration of vinyl chloride and monthly measurements of the total non-vinyl chloride organic HAP compounds in the stripped resin for each type and grade of resin produced. Each sample must be identified by the resin type and resin grade, the date and time the sample was taken, identification of the resin stripper from which the sample was taken, and the corresponding quantity (pounds) of resin processed by the stripper for the batch or over the time period represented by the sample.

(2) The total quantity (pounds) of each resin grade produced per day and the total quantity of resin processed by each resin stripper, identified by resin type and resin grade, per day.

(i) *Process wastewater.* For treatment processes, you must maintain the records specified in paragraphs (i)(1) through (5) of this section.

(1) A description of the process wastewater generation activities and treatment process.

(2) Records of the treatment determinations specified in § 63.11965(b) for each wastewater stream and the type of treatment applied if required in § 63.11965(c).

(3) Records of the initial performance test specified in § 63.11970(a) and (b).

(4) All testing data, including monthly measurements of the concentrations of vinyl chloride and the concentration of total non-vinyl chloride organic HAP in each process wastewater stream required to be measured, as specified in § 63.11975.

(5) You must keep any other applicable records that are required by the recordkeeping requirements specified in § 63.147 of subpart G of this part.

(j) *Other emission sources.* You must keep the records specified in paragraphs (j)(1) and (2) of this section.

(1) All engineering calculations, testing, sampling, and monitoring results and data specified in § 63.11955.

(2) Each occurrence that you do not comply with the requirements in § 63.11955.

§ 63.11995 In what form and how long must I keep my records?

(a) You must keep records for 5 years in a form suitable and readily available for expeditious review, as specified in § 63.10(b)(1).

(b) You must keep each record on site for at least 2 years, as specified in § 63.10(b)(1). You can keep the records off site for the remaining 3 years. Records may be maintained in hard copy or computer-readable format including, but not limited to, on paper, microfilm, hard disk drive, floppy disk, compact disk, magnetic tape or microfiche.

§ 63.12000 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the Administrator, as defined in § 63.2, or a delegated authority such as your state, local or tribal agency. If the Administrator has delegated authority to your state, local or tribal agency, then that agency (as well as the Administrator) has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if this subpart is delegated to your state, local or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a state, local or tribal agency, the authorities listed in paragraphs (b)(1) through (4) of this section are retained by the Administrator and are not transferred to the state, local or tribal agency, however, the EPA retains oversight of this subpart and can take enforcement actions, as appropriate.

(1) Approval of alternatives to the emission limits, operating limits, and work practice standards specified in this subpart.

(2) Approval of a major change to test methods, as defined in § 63.90, approval of any proposed analysis methods, and approval of any proposed test methods.

(3) Approval of a major change to monitoring, as defined in § 63.90.

(4) Approval of a major change to recordkeeping and reporting, as defined in § 63.90.

Definitions

§ 63.12005 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, and in this section, as follows:

Affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

Batch emission episode means a discrete venting episode that is associated with a single unit operation. A unit operation may have more than one batch emission episode. For example, a displacement of vapor resulting from the charging of a vessel with HAP will result in a discrete emission episode that will last through the duration of the charge and will have an average flowrate equal to the rate of the charge. If the vessel is then heated, there will also be another discrete emission episode resulting from the expulsion of expanded vapor. Both

emission episodes may occur in the same vessel or unit operation. There are possibly other emission episodes that may occur from the vessel or other process components, depending on process operations.

Batch operation means a noncontinuous operation involving intermittent or discontinuous feed into process components, and, in general, involves the emptying of the process components after the operation ceases and prior to beginning a new operation. Addition of raw material and withdrawal of product do not occur simultaneously in a batch operation.

Batch process vent means a vent from a batch operation from a PVCPU through which a HAP-containing gas stream has the potential to be released to the atmosphere except that it is required by this subpart to routed to a closed vent system and control device. Emissions for all emission episodes associated with the unit operation(s) are part of the batch process vent. Batch process vents also include vents with intermittent flow from continuous operations. Examples of batch process vents include, but are not limited to, vents on condensers used for product recovery, polymerization reactors, and process tanks.

Bottoms receiver means a tank that collects bottoms from continuous distillation before the stream is sent for storage or for further downstream processing. A rundown tank is an example of a bottoms receiver.

Bulk process means a process for producing polyvinyl chloride resin that is characterized by a two-step anhydrous polymerization process: the formation of small resin particles in a pre-polymerization reactor using small amounts of vinyl chloride monomer, an initiator, and agitation; and the growth of the resin particles in a post-polymerization reactor using additional vinyl chloride monomer. Resins produced using the bulk process are referred to as bulk resins.

Bypass means diverting a process vent or closed vent system stream to the atmosphere such that it does not first pass through an emission control device.

Calendar year means the period between January 1 and December 31, inclusive for a given year.

Capacity means the nominal figure or rating given by the manufacturer of the storage vessel, condenser, or other process component.

Car-seal means a seal that is placed on a device that is used to change the position of a valve (e.g., from opened to closed) in such a way that the position of the valve cannot be changed without breaking the seal.

Closed vent system means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and, if necessary, flow inducing devices that collect or transport gas or vapor from an emission point to a control device.

Combustion device means an individual unit used for the combustion of organic emissions, such as a flare, incinerator, process heater, or boiler.

Conservation vent means an automatically operated (*e.g.,* weight-loaded or spring-loaded) safety device used to prevent the operating pressure of a storage vessel from exceeding the maximum allowable working pressure of the process component. Conservation vents must be designed to open only when the operating pressure of the storage vessel exceeds the maximum allowable working pressure of the process component. Conservation vents open and close to permit only the intake or outlet relief necessary to keep the storage vessel within permissible working pressures, and reseal automatically.

Container means a portable unit in which a material can be stored, transported, treated, disposed of or otherwise handled. Examples of containers include, but are not limited to, drums, pails, and portable cargo containers known as ''portable tanks'' or ''totes.'' Container does not include transport vehicles or barges.

Continuous emission monitoring system (CEMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this subpart, used to sample, condition (if applicable), analyze, and provide a record of emissions.

Continuous operation means any operation that is not a batch operation.

Continuous parameter monitoring system (CPMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of process or control system parameters.

Continuous process vent means a vent from a continuous PVCPU operation through which a HAP-containing gas stream has the potential to be released to the atmosphere except that it is required by this subpart to routed to a closed vent system and control device and has the following characteristics:

(1) The gas stream originates as a continuous flow from any continuous PVCPU operation during operation of the PVCPU.

(2) The discharge into the closed vent system and control device meets at least one of the following conditions:

(i) Is directly from any continuous operation.

(ii) Is from any continuous operation after passing solely (*i.e.,* without passing through any other unit operation for a process purpose) through one or more recovery devices within the PVCPU.

(iii) Is from a device recovering only mechanical energy from a gas stream that comes either directly from any continuous operation, or from any continuous operation after passing solely (*i.e.,* without passing through any other unit operation for a process purpose) through one or more recovery devices within the PVCPU.

Continuous PVCPU operation means any operation that is not a batch operation or an operation that generates a miscellaneous process vent.

Continuous record means documentation, either in hard copy or computer readable form, of data values measured at least once every 15 minutes and recorded at the frequency specified in § 63.11990(e)(1).

Control device means, with the exceptions noted in this definition, a combustion device, recovery device, recapture device or any combination of these devices used to comply with this subpart. Process condensers are not control devices.

Control system means the combination of the closed vent system and the control devices used to collect and control vapors or gases from a regulated emission source.

Cooling tower means a heat removal device used to remove the heat absorbed in circulating cooling water systems by transferring the heat to the atmosphere using natural or mechanical draft.

Cooling tower return line means the main water trunk lines at the inlet to the cooling tower before exposure to the atmosphere.

Corrective action plan means a description of all reasonable interim and long-term measures, if any, that are available, and an explanation of why the selected corrective action is the best alternative, including, but not limited to, any consideration of cost-effectiveness.

Day means a calendar day, unless otherwise specified in this subpart.

Dioxin/furans means total tetra- through octachlorinated dibenzo-p-dioxins and dibenzofurans.

Dispersion process means a process for producing polyvinyl chloride resin that is characterized by the formation of the polymers in soap micelles that contain small amounts of vinyl chloride monomer. Emulsifiers are used to

disperse vinyl chloride monomer in the water phase. Initiators used in the dispersion process are soluble in water. Resins produced using the dispersion process are referred to as latex or dispersion resins.

Empty or emptying means the partial or complete removal of stored liquid from a storage vessel. Storage vessels that contain liquid only as a result of the liquid clinging to the walls or bottoms, or resting in pools due to bottom irregularities, are considered completely empty.

Equipment means each pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, connector and instrumentation system in HAP service; and any control devices or systems used to comply with this subpart.

Fill or filling means the introduction of liquid into a storage vessel, but not necessarily to capacity.

First attempt at repair, for the purposes of this subpart, means to take action for the purpose of stopping or reducing leakage of organic material to the atmosphere, followed by monitoring as specified in § 63.11930(f) to verify whether the leak is repaired, unless the owner or operator determines by other means that the leak is not repaired.

Fixed roof storage vessel means a vessel with roof that is mounted (*i.e.,* permanently affixed) on a storage vessel and that does not move with fluctuations in stored liquid level.

Flow indicator means a device that indicates whether gas flow is, or whether the valve position would allow gas flow to be, present in a line.

Gasholder means a surge control vessel with a bell that is floating in a vessel filled with water that is used to store gases from the PVC production process prior to being recovered or sent to a process vent control device. The bell rises and falls as low-pressure gases enter and leave the space beneath the bell and the water provides a seal between the enclosed gas within the floating bell and the ambient air.

Grade means the subdivision of PVC resin that describes it as a unique resin, *i.e.,* the most exact description of a type of resin with no further subdivision. Examples include low molecular weight suspension resins and general purpose suspension resins.

Hard-piping means pipes or tubing that are manufactured and properly installed using good engineering judgment and an appropriate standard method published by a consensus-based standards organization if such a method exists or you may use an industry standard practice. Consensus-based standards organizations include, but are not limited to, American National Standards Institute (ANSI, 1819 L Street NW., 6th floor, Washington, DC 20036, (202) 293–8020, *http://www.ansi.org*).

Heat exchange system means a device or collection of devices used to transfer heat from process fluids to water without intentional direct contact of the process fluid with the water (*i.e.,* non-contact heat exchanger) and to transport and/or cool the water in a closed-loop recirculation system (cooling tower system) or a once-through system (*e.g.,* river or pond water). For closed-loop recirculation systems, the heat exchange system consists of a cooling tower, all heat exchangers that are serviced by that cooling tower and all water lines to and from the heat exchanger(s). For once-through systems, the heat exchange system consists of one or more heat exchangers servicing an individual process unit and all water lines to and from the heat exchanger(s). Intentional direct contact with process fluids results in the formation of a wastewater.

Heat exchanger exit line means the cooling water line from the exit of one or more heat exchangers (where cooling water leaves the heat exchangers) to either the entrance of the cooling tower return line or prior to exposure to the atmosphere or mixing with non-cooling water streams, in, as an example, a once-through cooling system, whichever occurs first.

In HAP service means that a process component either contains or contacts a liquid that is at least 5-percent HAP by weight or a gas that is at least 5 percent by volume HAP as determined according to the provisions of § 63.180(d). For the purposes of this definition, the term ''organic HAP'' as used in § 63.180(d) means HAP. The provisions of § 63.180(d) also specify how to determine that a process component is not in HAP service.

In vacuum service means that the process component is operating at an internal pressure that is at least 5 kilopascals (kPa) (0.7 pounds per square inch absolute) below ambient pressure.

Incinerator means an enclosed combustion device with an enclosed fire box that is used for destroying organic compounds. Auxiliary fuel may be used to heat waste gas to combustion temperatures. Any energy recovery section present is not physically formed into one manufactured or assembled unit with the combustion section; rather, the energy recovery section is a separate section following the combustion section and the two are joined by ducts or connections carrying flue gas. This energy recovery section limitation does not apply to an energy recovery section used solely to preheat the incoming vent stream or combustion air.

Maintenance wastewater means wastewater generated by the draining of process fluid from components in the PVCPU 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, hydroblasting PVCPU process components such as polymerization reactors, vessels and heat exchangers, draining of low legs and high point bleeds, draining of pumps into an individual drain system, draining of portions of the PVCPU for repair and water used to wash out process components or equipment after the process components or equipment has already been opened to the atmosphere and has met the requirements of § 63.11955.

Maximum representative operating conditions means process operating conditions that result in the most challenging condition for the control device. The most challenging condition for the control device may include, but is not limited to, the highest or lowest HAP mass loading rate to the control device, the highest or lowest HAP mass loading rate of constituents that approach the limits of solubility for scrubbing media, the highest or lowest HAP mass loading rate of constituents that approach limits of solubility for scrubbing media.

Maximum true vapor pressure means the equilibrium partial pressure exerted by the total HAP in the stored or transferred liquid at the temperature equal to the highest calendar-month average of the liquid storage or transfer temperature for liquids stored or transferred above or below the ambient temperature or at the local maximum monthly average temperature as reported by the National Weather Service for liquids stored or transferred at the ambient temperature, as determined by any one of the following methods or references:

(1) In accordance with methods described in API MPMS 19.2 (incorporated by reference, see § 63.14).

(2) As obtained from standard reference texts.

(3) As determined by ASTM D2879–83 or ASTM D2879–96 (incorporated by reference, see § 63.14).

(4) Any other method approved by the Administrator.

Miscellaneous vent means gaseous emissions from samples, loading and unloading lines, slip gauges, process wastewater treatment systems and pressure relief devices that are routed through a closed vent system to a control device and that are not equipment leaks.

Nonstandard batch means a batch process that is operated outside of the range of operating conditions that are documented in an existing operating scenario, but is still a reasonably anticipated event. For example, a nonstandard batch occurs when additional processing or processing at different operating conditions must be conducted to produce a product that is normally produced under the conditions described by the standard batch. A nonstandard batch may be necessary as a result of a malfunction, but it is not itself a malfunction.

Operating block means a period of time that is equal to the time from the beginning to end of batch process operations within a process.

Operating day means a 24-hour period between 12 midnight and the following midnight during which PVC is produced at any time in the PVCPU. It is not necessary for PVC to be produced for the entire 24-hour period.

Operating scenario means, for the purposes of reporting and recordkeeping, any specific operation of a regulated process as described by reports specified in § 63.11985(b)(4)(ii) and records specified in § 63.11990(e)(4).

Plant site means all contiguous or adjoining property that is under common control, including properties that are separated only by a road or other public right-of-way. Common control includes properties that are owned, leased or operated by the same entity, parent entity, subsidiary or any combination thereof.

Polymerization reactor means any vessel in which vinyl chloride is partially or totally polymerized into polyvinyl chloride. For bulk processes, the polymerization reactor includes pre-polymerization reactors and post-polymerization reactors.

Polyvinyl chloride means either polyvinyl chloride homopolymer or polyvinyl chloride copolymer.

Polyvinyl chloride and copolymers production process unit or PVCPU means a collection of process components assembled and connected by hard-piping or duct work, used to process raw materials and to manufacture polyvinyl chloride and/or polyvinyl chloride copolymers. A PVCPU includes, but is not limited to, polymerization reactors; resin stripping operations; resin blend tanks; resin centrifuges; resin dryers; resin product separators; recovery devices; reactant and raw material charge vessels and tanks, holding tanks, mixing and weighing tanks; finished resin product storage tanks or storage silos; finished resin product loading operations; connected ducts and piping; equipment including pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves and connectors and instrumentation systems. A PVCPU does not include chemical manufacturing process units, as defined in § 63.101, that produce vinyl chloride monomer or other raw materials used in the PVC polymerization process.

Polyvinyl chloride copolymer means a synthetic thermoplastic polymer that is derived from the simultaneous polymerization of vinyl chloride and another monomer such as vinyl acetate. Polyvinyl chloride copolymer is produced by different processes, including, but not limited to, suspension, dispersion/emulsion, suspension blending, and solution processes.

Polyvinyl chloride homopolymer means a synthetic thermoplastic polymer that is derived from the polymerization of vinyl chloride and has the general chemical structure (-H2CCHCl-)n. Polyvinyl chloride homopolymer is typically a white powder or colorless granule. Polyvinyl chloride homopolymer is produced by different processes, including (but not limited to), suspension, dispersion/emulsion, blending, and bulk processes.

Pressure relief device means a safety device used to prevent operating pressures from exceeding the maximum allowable working pressure of the process component. A common pressure relief device is a spring-loaded pressure relief valve.

Pressure vessel means a vessel that is used to store liquids or gases and is designed not to vent to the atmosphere as a result of compression of the vapor headspace in the pressure vessel during filling of the pressure vessel to its design capacity.

Process change means an addition to or change in a PVCPU and/or its associated process components that creates one or more emission points or changes the characteristics of an emission point such that a new or different emission limit, operating parameter limit, or work practice requirement applies to the added or changed emission points. Examples of process changes include, but are not limited to, changes in production capacity, production rate, or catalyst type, or whenever there is replacement, removal, or addition of recovery device components. For purposes of this definition, process changes do not include process upsets, changes that do not alter the process component configuration and operating conditions, and unintentional, temporary process changes. A process change does not include moving within a range of conditions identified in the standard batch, and a nonstandard batch does not constitute a process change.

Process component means any unit operation or group of units operations or any part of a process or group of parts of a process that are assembled to perform a specific function (*e.g.,* polymerization reactor, dryers, etc.). Process components include equipment, as defined in this section.

Process condenser means a condenser whose primary purpose is to recover material as an integral part of a batch process. All condensers recovering condensate from a batch process at or above the boiling point or all condensers in line prior to a vacuum source are considered process condensers. Typically, a primary condenser or condensers in series are considered to be integral to the batch regulated process if they are capable of and normally used for the purpose of recovering chemicals for fuel value (*i.e.,* net positive heating value), use, reuse or for sale for fuel value, use or reuse. This definition does not apply to a condenser that is used to remove materials that would hinder performance of a downstream recovery device as follows:

(1) To remove water vapor that would cause icing in a downstream condenser.

(2) To remove water vapor that would negatively affect the adsorption capacity of carbon in a downstream carbon adsorber.

(3) To remove high molecular weight organic compounds or other organic compounds that would be difficult to remove during regeneration of a downstream adsorber.

Process tank means a tank or other vessel (*e.g.,* pressure vessel) that is used within an affected source to both: (1) Collect material discharged from a feedstock storage vessel, process tank, or other PVCPU process component, and (2) discharge the material to another process tank, process component, byproduct storage vessel, or product storage vessel.

Process unit means the process components assembled and connected by pipes or ducts to process raw and/or intermediate materials and to manufacture an intended product. For the purpose of this subpart, process unit

includes, but is not limited to, polyvinyl chloride production process.

Process vent means a vent stream that is the result of the manifolding of each and all batch process vent, continuous process vent, or miscellaneous vent resulting from the affected facility into a closed vent system and into a common header that is routed to a control device. The process vent standards apply at the outlet of the control device. A process vent is either a PVC-only process vent or a PVC-combined process vent.

Process wastewater means wastewater that comes into direct contact with HAP or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product containing HAP, but that has not been discharged untreated as wastewater. 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; water discarded from a control device; and condensed steam from jet ejector systems pulling vacuum on vessels containing organics. Gasholder seal water is not process wastewater until it is removed from the gasholder.

Process wastewater treatment system means a specific technique or collection of techniques that remove or destroy the organics in a process wastewater stream to comply with §§ 63.11965, 63.11970, and 63.11975.

Product means a polymer produced using the same monomers and varying in additives (*e.g.,* initiators, terminators, etc.); catalysts; or in the relative proportions of monomers, that is manufactured by a process unit. With respect to polymers, more than one recipe may be used to produce the same product, and there can be more than one grade of a product. Product also means a chemical that is not a polymer, which is manufactured by a process unit. By-products, isolated intermediates, impurities, wastes, and trace contaminants are not considered products.

PVC-combined process vent means a process vent that originates from a PVCPU and is combined with one or more process vents originating from another source category prior to being controlled or emitted to the atmosphere.

PVC-only process vent means a process vent that originates from a PVCPU and is not combined with a process vent originating from another source category prior to being controlled or emitted to the atmosphere.

Recipe means a specific composition from among the range of possible compositions that may occur within a product, as defined in this section. A recipe is determined by the proportions of monomers and, if present, other reactants and additives that are used to make the recipe.

Recovery device means an individual process component capable of and normally used for the purpose of recovering chemicals for fuel value (*i.e.,* net positive heating value), use, reuse, or for sale for fuel value, use, or reuse. Examples of process components that may be recovery devices include absorbers, adsorbers, condensers, oil-water separators or organic-water separators, or organic removal devices such as decanters, strippers (*e.g.,* wastewater steam and vacuum strippers), or thin-film evaporation units. For purposes of this subpart, recovery devices are control devices.

Repaired, for the purposes of this subpart, means equipment that is adjusted or otherwise altered to eliminate a leak as defined in the applicable sections of this subpart; and unless otherwise specified in applicable provisions of this subpart, is inspected as specified in § 63.11930(f) to verify that emissions from the equipment are below the applicable leak definition.

Resin stripper means a unit that removes organic compounds from a raw polyvinyl chloride and copolymer product. In the production of a polymer, stripping is a discrete step that occurs after the polymerization reaction and before drying or other finishing operations. Examples of types of stripping include steam stripping, vacuum stripping, or other methods of devolatilization. For the purposes of this subpart, devolatilization that occurs in dryers or other finishing operations is not resin stripping. Resin stripping may occur in a polymerization reactor or in a batch or continuous stripper separate from the polymerization reactor where resin stripping occurs.

Root cause analysis means an assessment conducted through a process of investigation to determine the primary cause, and any other significant contributing cause(s), of a discharge of gases in excess of specified thresholds.

Sensor means a device that measures a physical quantity or the change in a physical quantity, such as temperature, pressure, flow rate, pH, or liquid level.

Slip gauge means a gauge that has a probe that moves through the gas/liquid interface in a storage vessel and indicates the level of product in the vessel by the physical state of the material the gauge discharges.

Solution process means a process for producing polyvinyl chloride copolymer resin that is characterized by the anhydrous formation of the polymer through precipitation. Polymerization occurs in an organic solvent in the presence of an initiator where vinyl chloride monomer and co-monomers are soluble in the solvent, but the polymer is not. The PVC copolymer is a granule suspended in the solvent, which then precipitates out of solution. Emulsifiers and suspending agents are not used in the solution process. PVC copolymer resins produced using the solution process are referred to as solution resins.

Specific gravity monitoring device means a unit of equipment used to monitor specific gravity and having a minimum accuracy of ±0.02 specific gravity units.

Standard procedure means a formal written procedure officially adopted by the plant owner or operator and available on a routine basis to those persons responsible for carrying out the procedure.

Storage vessel means a tank or other vessel (*e.g.,* pressure vessel) that is part of an affected source and is used to store a gaseous, liquid, or solid feedstock, byproduct, or product that contains organic HAP. Storage vessel does not include:

(1) Vessels permanently attached to motor vehicles such as trucks, railcars, barges, or ships;

(2) Process tanks;

(3) Vessels with capacities smaller than 10,040 gallons;

(4) Vessels storing organic liquids that contain organic HAP only as impurities;

(5) Bottoms receiver tanks;

(6) Surge control vessels; and

(7) Wastewater storage tanks. Wastewater storage tanks are covered under the wastewater provisions.

Stripped resin means the material exiting the resin stripper that contains polymerized vinyl chloride.

Supplemental combustion air means the air that is added to a vent stream after the vent stream leaves the unit operation. Air that is part of the vent stream as a result of the nature of the unit operation is not considered supplemental combustion air. Air required to operate combustion device burner(s) is not considered supplemental combustion air. Air required to ensure the proper operation of catalytic oxidizers, to include the intermittent addition of air upstream of the catalyst bed to maintain a minimum threshold flow rate through the catalyst bed or to avoid excessive temperatures in the catalyst bed, is not considered to be supplemental combustion air.

Surge control vessel means feed drums, recycle drums, and intermediate vessels used as a part of any continuous operation. Surge control vessels are used within an affected source when in-process storage, mixing, or management of flow rates or volumes is needed to introduce material into continuous operations. Surge control vessels also include gasholders.

Suspension blending process means a process for producing polyvinyl chloride resin that is similar to the suspension polymerization process, but employs a rate of agitation that is significantly higher than the highest range for non-blending suspension resins. The suspension blending process uses a recipe that creates extremely small resin particles, generally equal to or less than 100 microns in size, with a glassy surface and very little porosity. The suspension blending process concentrates the resins using a centrifuge that is specifically designed to handle these small particles. Polyvinyl chloride resins produced using the suspension blending process are referred to as suspension blending resins and are typically blended with dispersion resins.

Suspension process means a process for producing polyvinyl chloride resin that is characterized by the formation of the polymers in droplets of liquid vinyl chloride monomer or other co-monomers suspended in water. The droplets are formed by agitation and the use of protective colloids or suspending agents. Initiators used in the suspension process are soluble in vinyl chloride monomer. Polyvinyl chloride resins produced using the suspension process are referred to as suspension resins.

Table 10 HAP means a HAP compound listed in table 10 of this subpart.

Total non-vinyl chloride organic HAP means, for the purposes of this subpart, the sum of the measured concentrations of each HAP, as calculated according to the procedures specified in §§ 63.11960(f) and 63.11980(b).

Type of resin means the broad classification of PVC homopolymer and copolymer resin referring to the basic manufacturing process for producing that resin, including, but not limited to, suspension, dispersion/emulsion, suspension blending, bulk, and solution processes.

Unloading operations means the transfer of organic liquids from a transport vehicle, container, or storage vessel to process components within the affected source.

Wastewater means process wastewater and maintenance wastewater. The following are not considered wastewater for the purposes of this subpart:

(1) Stormwater from segregated sewers;

(2) Water from fire-fighting and deluge systems, including testing of such systems;

(3) Spills;

(4) Water from safety showers;

(5) Samples of a size not greater than reasonably necessary for the method of analysis that is used;

(6) Equipment leaks;

(7) Wastewater drips from procedures such as disconnecting hoses after cleaning lines; and

(8) Noncontact cooling water.

Wastewater stream means a stream that contains only wastewater as defined in this section.

Work practice standard means any design, equipment, work practice or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

TABLE 1 TO SUBPART HHHHHHH OF PART 63—EMISSION LIMITS AND STANDARDS FOR EXISTING AFFECTED SOURCES

For this type of emission point . . .	And for this air pollutant . . .	And for an affected source producing this type of PVC resin . . .	You must meet this emission limit . . .
1. PVC-only process vents [a]	a. Vinyl chloride	All resin types	6.0 parts per million by volume (ppmv).
	b. Total hydrocarbons	All resin types	9.7 ppmv measured as propane.
	c. Total organic HAP [b]	All resin types	56 ppmv.
	d. Hydrogen chloride	All resin types	78 ppmv.
	e. Dioxins/furans (toxic equivalency basis).	All resin types	0.038 nanograms per dry standard cubic meter (ng/dscm).
2. PVC-combined process vents [a]	a. Vinyl chloride	All resin types	1.1 ppmv.
	b. Total hydrocarbons	All resin types	4.2 ppmv measured as propane.
	c. Total organic HAP [b]	All resin types	9.8 ppmv.
	d. Hydrogen chloride	All resin types	380 ppmv.
	e. Dioxins/furans (toxic equivalency basis).	All resin types	0.051 ng/dscm.
3. Stripped resin	a. Vinyl chloride	i. Bulk resin	7.1 parts per million by weight (ppmw).
		ii. Dispersion resin	1300 ppmw.
		iii. Suspension resin	37 ppmw.
		iv. Suspension blending resin	140 ppmw.
		v. Copolymer resin	790 ppmw.
	b. Total non-vinyl chloride organic HAP.	i. Bulk resin	170 ppmw.
		ii. Dispersion resin	240 ppmw.
		iii. Suspension resin	670 ppmw.
		iv. Suspension blending resin	500 ppmw.
		v. Copolymer resin	1900 ppmw.
4. Process Wastewater	a. Vinyl chloride	All resin types	6.8 ppmw.
	b. Total non-vinyl chloride organic HAP.	All resin types	110 ppmw.

[a] Emission limits at 3 percent oxygen, dry basis.
[b] Total organic HAP is alternative compliance limit for THC.

TABLE 2 TO SUBPART HHHHHHH OF PART 63—EMISSION LIMITS AND STANDARDS FOR NEW AFFECTED SOURCES

For this type of emission point . . .	And for this air pollutant . . .	And for an affected source producing this type of PVC resin . . .	You must meet this emission limit . . .
1. PVC-only process vents [a]	a. Vinyl chloride	All resin types	0.56 ppmv.
	b. Total hydrocarbons	All resin types	7.0 ppmv measured as propane.
	c. Total organic HAP [b]	All resin types	5.5 ppmv.
	d. Hydrogen chloride	All resin types	0.17 ppmv.
	e. Dioxins/furans (toxic equivalency basis).	All resin types	0.038 ng/dscm.
2. PVC-combined process vents [a]	a. Vinyl chloride	All resin types	0.56 ppmv.
	b. Total hydrocarbons	All resin types	2.3 ppmv measured as propane.
	c. Total organic HAP [b]	All resin types	5.5 ppmv.
	d. Hydrogen chloride	All resin types	1.4 ppmv.
	e. Dioxins/furans (toxic equivalency basis).	All resin types	0.034 nanograms per dry standard cubic meter (ng/dscm).
3. Stripped resin	a. Vinyl chloride	i. Bulk resin	7.1 parts per million by weight (ppmw).
		ii. Dispersion resin	480 ppmw.
		iii. Suspension resin	7.3 ppmw.
		iv. Suspension blending resin	140 ppmw.
		v. Copolymer—all resin types	790 ppmw.
	b. Total non-vinyl chloride organic HAP.	i. Bulk resin	170 ppmw.
		ii. Dispersion resin	66 ppmw.
		iii. Suspension resin	15 ppmw.
		iv. Suspension blending resin	500 ppmw.
		v. Copolymer resin	1900 ppmw.
4. Process Wastewater	a. Vinyl chloride	All resin types	0.28 ppmw.
	b. Total non-vinyl chloride organic HAP.	All resin types	0.018 ppmw.

[a] Emission limits at 3 percent oxygen, dry basis.
[b] Total organic HAP is alternative compliance limit for THC.

TABLE 3 TO SUBPART HHHHHHH OF PART 63—SUMMARY OF CONTROL REQUIREMENTS FOR STORAGE VESSELS AT NEW AND EXISTING SOURCES

If the storage vessel capacity (gallons) is . . .	And the vapor pressure [a] (psia) is . . .	Then, you must use the following type of storage vessel . . .
≥20,000 but <40,000	≥4	Internal floating roof, external floating roof, or fixed roof vented to a closed vent system and control device achieving 95 percent reduction.[b]
≥40,000	≥0.75	Internal floating roof, external floating roof, or fixed roof vented to a closed vent system and control device achieving 95 percent reduction.[b]
Any capacity.	>11.1	Pressure vessel.[c]
All other capacity and vapor pressure combinations		Fixed roof.[d]

[a] Maximum true vapor pressure of total HAP at storage temperature.
[b] If using a fixed roof storage vessel vented to a closed vent system and control device, you must meet the requirements in § 63.11910(a) for fixed roof storage vessels. If using an internal floating roof storage vessel or external floating roof storage vessels, you must meet the requirements in § 63.11910(b) for internal floating roof storage vessels or external floating roof storage vessels, as applicable.
[c] Meeting the requirements of § 63.11910(c) for pressure vessels.
[d] Meeting the requirements in § 63.11910(a) for fixed roof storage vessels.

TABLE 4 TO SUBPART HHHHHHH OF PART 63—APPLICABILITY OF THE GENERAL PROVISIONS TO PART 63

Citation	Subject	Applies to subpart HHHHHHH	Comment
§ 63.1(a)(1)–(a)(4), (a)(6), (a)(10)–(a)(12), (b)(1), (b)(3), (c)(1), (c)(2), (c)(5), (e).	Applicability	Yes.	
§ 63.1(a)(5), (a)(7)–(a)(9), (b)(2), (c)(3), (c)(4), (d).	[Reserved]	No.	
§ 63.2	Definitions	Yes	Additional definitions are found in § 63.12005.
§ 63.3	Units and abbreviations	Yes.	
§ 63.4(a)(1), (a)(2), (b), (c)	Prohibited activities and circumvention.	Yes.	
§ 63.4(a)(3)–(a)(5)	[Reserved]	No.	

TABLE 4 TO SUBPART HHHHHHH OF PART 63—APPLICABILITY OF THE GENERAL PROVISIONS TO PART 63—Continued

Citation	Subject	Applies to subpart HHHHHHH	Comment
§ 63.5(a), (b)(1), (b)(3), (b)(4), (b)(6), (d)–(f).	Preconstruction review and notification requirements.	Yes.	
§ 63.5(b)(2), (b)(5), (c)	[Reserved]	No.	
§ 63.6(a), (b)(1)–(b)(5), (b)(7), (c)(1), (c)(2), (c)(5), (e)(1)(iii), (f)(2), (f)(3), (g), (i), (j).	Compliance with standards and maintenance requirements.	Yes	§ 63.11875 specifies compliance dates.
§ 63.6(b)(6), (c)(3), (c)(4), (d), (e)(2), (e)(3)(ii), (h)(2)(ii), (h)(3), (h)(5)(iv).	[Reserved]	No	
§ 63.6(e)(1)(i), (e)(1)(ii), (e)(3), (f)(1).	Startup, shutdown, and malfunction provisions.	No. See § 63.11890(b) for general duty requirement.	
§ 63.6(h)(1), (h)(2)(i), (h)(2)(iii), (h)(4), (h)(5)(i)–(h)(5)(iii), (h)(5)(v), (h)(6)–(h)(9).	Compliance with opacity and visible emission standards.	No	Subpart HHHHHHH does not specify opacity or visible emission standards.
§ 63.7(a)(1), (a)(2), (a)(3), (a)(4), (b)–(d), (e)(2)–(e)(4), (f), (g)(1), (g)(3), (h).	Performance testing requirements	Yes.	
§ 63.7(a)(2)(i)–(viii)	[Reserved]	No.	
§ 63.7(a)(2)(ix)	Performance testing requirements	Yes.	
§ 63.7(e)(1)	Performance testing	No. See especially § 63.11945, 63.11960(d), 63.11980(a).	
§ 63.7(g)(2)	[Reserved]	No.	
§ 63.8(a)(1), (a)(2), (a)(4), (b), (c)(1)(i), (c)(1)(ii), (c)(2)–(c)(4), (c)(6)–(c)(8).	Monitoring requirements	Yes	Except cross reference in § 63.8(c)(1)(i) to § 63.6(e)(1) is replaced with a cross-reference to § 63.11890(b).
§ 63.8(a)(3)	[Reserved]	No.	
§ 63.8(c)(1)(iii)	Requirement to develop SSM plan for continuous monitoring systems.	No.	
§ 63.8(c)(5)	Continuous opacity monitoring system minimum procedures.	No	Subpart HHHHHHH does not have opacity or visible emission standards.
§ 63.8(d)	Written procedures for continuous monitoring systems.	Yes, except for last sentence, which refers to an SSM plan. SSM plans are not required.	
§ 63.8(e)	Continuous monitoring systems performance evaluation.	Yes.	
§ 63.8(f)	Use of an alternative monitoring method.	Yes.	
§ 63.8(g)	Reduction of monitoring data	Yes	Except that the minimum data collection requirements are specified in § 63.11935(e).
§ 63.9(a), (b)(1), (b)(2), (b)(4)(i), (b)(4)(v), (b)(5), (c)–(e), (g)(1), (g)(3), (h)(1)–(h)(3), (h)(5), (h)(6), (i), (j).	Notification requirements	Yes.	
§ 63.9(f)	Notification of opacity and visible emission observations.	No	Subpart HHHHHHH does not have opacity or visible emission standards.
§ 63.9(g)(2)	Use of continuous opacity monitoring system data.	No	Subpart HHHHHHH does not require the use of continuous opacity monitoring system.
§ 63.9(b)(3), (b)(4)(ii)–(iv), (h)(4)	[Reserved]	No.	
§ 63.10(a), (b)(1)	Recordkeeping and reporting requirements.	Yes.	
§ 63.10(b)(2)(i)	Recordkeeping of occurrence and duration of startups and shutdowns.	No.	
§ 63.10(b)(2)(ii)	Recordkeeping of malfunctions	No. See §§ 63.11895(b), 63.11985(b)(4)(i), 63.11985(b)(9) through (11), and 63.11985(c)(7).	
§ 63.10(b)(2)(iii)	Maintenance records	Yes.	
§ 63.10(b)(2)(iv), (b)(2)(v)	Actions taken to minimize emissions during SSM.	No.	
§ 63.10(b)(2)(vi)	Recordkeeping for CMS malfunctions.	Yes.	
§ 63.10(b)(2)(vii)–(x)	Other CMS requirements	Yes.	
§ 63.10(b)(2)(xi)–(xiv)	Other recordkeeping requirements	Yes.	
§ 63.10(b)(3)	Recordkeeping requirement for applicability determinations.	Yes.	

TABLE 4 TO SUBPART HHHHHHH OF PART 63—APPLICABILITY OF THE GENERAL PROVISIONS TO PART 63—Continued

Citation	Subject	Applies to subpart HHHHHHH	Comment
§ 63.10(c)(1), (c)(5), (c)(6)	Additional recordkeeping requirements for sources with continuous monitoring systems.	Yes.	
§ 63.10(c)(2)–(4), (c)(9)	[Reserved]	No.	
§ 63.10(c)(7)	Additional recordkeeping requirements for CMS—identifying exceedances and excess emissions during SSM.	Yes.	
§ 63.10(c)(8)	Additional recordkeeping requirements for CMS—identifying exceedances and excess emissions.	Yes.	
§ 63.10(c)(10)	Recording nature and cause of malfunctions.	No. See §§ 63.11895(b), 63.11985(b)(4)(i), 63.11985(b)(9) through (11), and 63.11985(c)(7).	
63.10(c)(11), (c)(12)	Recording corrective actions	No. See §§ 63.11895(b), 63.11985(b)(4)(i), 63.11985(b)(9) through (11), and 63.11985(c)(7).	
§ 63.10(c)(13)–(14)	Records of the total process operating time during the reporting period and procedures that are part of the continuous monitoring system quality control program.	Yes.	
§ 63.10(c)(15)	Use SSM plan	No.	
§ 63.10(d)(1)	General reporting requirements	Yes.	
§ 63.10(d)(2)	Performance test results	Yes.	
§ 63.10(d)(3)	Opacity or visible emissions observations.	No	Subpart HHHHHHH does not specify opacity or visible emission standards.
§ 63.10(d)(4)	Progress reports	Yes.	
§ 63.10(d)(5)	SSM reports	No. See §§ 63.11895(b), 63.11985(b)(4)(i), 63.11985(b)(9) through (11), and 63.11985(c)(7).	
§ 63.10(e)(1)	Additional continuous monitoring system reports—general.	Yes.	
§ 63.10(e)(2)(i)	Results of continuous monitoring system performance evaluations.	Yes.	
§ 63.10(e)(2)(ii)	Results of continuous opacity monitoring system performance evaluations.	No	Subpart HHHHHHH does not require the use of continuous opacity monitoring system.
§ 63.10(e)(3)	Excess emissions/continuous monitoring system performance reports.	Yes.	
§ 63.10(e)(4)	Continuous opacity monitoring system data reports.	No	Subpart HHHHHHH does not require the use of continuous opacity monitoring system.
§ 63.10(f)	Recordkeeping/reporting waiver	Yes.	
63.11(a)	Control device and work practice requirements—applicability.	Yes.	
§ 63.11(b)	Flares	No	Facilities subject to subpart HHHHHHH do not use flares as control devices, as specified in § 63.11925(b).
§ 63.11(c)–(e)	Alternative work practice for monitoring equipment for leaks.	Yes.	
§ 63.12	State authority and delegations	Yes	§ 63.12000 identifies types of approval authority that are not delegated.
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporations by reference	Yes	Subpart HHHHHHH incorporates material by reference.
§ 63.15	Availability of information and confidentiality.	Yes.	
§ 63.16	Performance track provisions	Yes.	

TABLE 5 TO SUBPART HHHHHHH OF PART 63—OPERATING PARAMETERS, OPERATING LIMITS AND DATA MONITORING, RECORDING AND COMPLIANCE FREQUENCIES FOR PROCESS VENTS

For these control devices, you must monitor these operating parameters . . .	Establish the following operating limit during your initial performance test . . .	Monitor, record, and demonstrate continuous compliance using these minimum frequencies		
		Data measurement	Data recording	Data averaging period for compliance
Process Vents				
Any Control device				
Flow to/from the control device.	N/A	Continuous	N/A	Date and time of flow start and stop.
Thermal Oxidizers				
Temperature (in fire box or downstream ductwork prior to heat exchange).	Minimum temperature	Continuous	Every 15 minutes	3-hour block average.
Temperature differential across catalyst bed.	Minimum temperature differential.	Continuous	Every 15 minutes	3-hour block average.
Inlet temperature to catalyst bed and catalyst condition.	Minimum inlet temperature and catalyst condition as specified in 63.11940 (b)(3).	Continuous for temperature, annual for catalyst condition.	Every 15 minutes for temperature, annual for catalyst condition.	3-hour block average for temperature, annual for catalyst condition.
Absorbers and Acid Gas Scrubbers				
Influent liquid flow	Minimum inlet liquid flow	Continuous	Every 15 minutes	3-hour block average.
Influent liquid flow and gas stream flow.	Minimum influent liquid flow to gas stream flow ratio.	Continuous	Every 15 minutes	3-hour block average.
Pressure drop	Minimum pressure drop	Continuous	Every 15 minutes	3-hour block average.
Exhaust gas temperature	Maximum exhaust gas temperature.	Continuous	Every 15 minutes	3-hour block average.
Change in specific gravity of scrubber liquid.	Minimum change in specific gravity.	Continuous	Every 15 minutes	3-hour block average.
pH of effluent liquid	Minimum pH	Continuous	Every 15 minutes	3-hour block average.
Causticity of effluent liquid	Minimum causticity	Continuous	Every 15 minutes	3-hour block average.
Conductivity of effluent liquid.	Minimum conductivity	Continuous	Every 15 minutes	3-hour block average.
Regenerative Adsorber				
Regeneration stream flow.	Minimum total flow per regeneration cycle.	Continuous	N/A	Total flow for each regeneration cycle.
Adsorber bed temperature.	Maximum temperature	Continuously after regeneration and within 15 minutes of completing any temperature regulation.	Every 15 minutes after regeneration and within 15 minutes of completing any temperature regulation.	3-hour block average.
Adsorber bed temperature.	Minimum temperature	Continuously during regeneration except during any temperature regulating portion of the regeneration cycle.	N/A	Average of regeneration cycle.
Vacuum and duratio of regeneration.	Minimum vacuum and period of time for regeneration.	Continuous	N/A	Average vacuum and duration of regeneration.
Regeneration frequency	Minimum regeneration frequency and duration.	Continuous	N/A	Date and time of regeneration start and stop.
Adsorber operation valve sequencing and cycle time.	Correct valve sequencing and minimum cycle time.	Daily	Daily	N/A.
Non-Regenerative Adsorber				
Average adsorber bed life.	N/A	Daily until breakthrough for 3 adsorber bed changeouts.	N/A	N/A.

TABLE 5 TO SUBPART HHHHHHH OF PART 63—OPERATING PARAMETERS, OPERATING LIMITS AND DATA MONITORING, RECORDING AND COMPLIANCE FREQUENCIES FOR PROCESS VENTS—Continued

For these control devices, you must monitor these operating parameters . . .	Establish the following operating limit during your initial performance test . . .	Monitor, record, and demonstrate continuous compliance using these minimum frequencies		
		Data measurement	Data recording	Data averaging period for compliance
Outlet VOC concentration of the first adsorber bed in series.	Limits in Table 1 or 2 of this subpart.	Daily, except monthly (if more than 2 months bed life remaining) or weekly (if more than 2 weeks bed life remaining).	N/A	Daily, weekly, or monthly.
Condenser				
Temperature	Maximum outlet temperature.	Continuous	Every 15 minutes	3-hour block average.

TABLE 6 TO SUBPART HHHHHHH OF PART 63—TOXIC EQUIVALENCY FACTORS

Dioxin/furan congener	Toxic equivalency factor
2,3,7,8-tetrachlorodibenzo-p-dioxin	1
1,2,3,7,8-pentachlorodibenzo-p-dioxin	1
1,2,3,4,7,8-hexachlorodibenzo-p-dioxin	0.1
1,2,3,7,8,9-hexachlorodibenzo-p-dioxin	0.1
1,2,3,6,7,8-hexachlorodibenzo-p-dioxin	0.1
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	0.01
octachlorodibenzo-p-dioxin	0.0003
2,3,7,8-tetrachlorodibenzofuran	0.1
2,3,4,7,8-pentachlorodibenzofuran	0.3
1,2,3,7,8-pentachlorodibenzofuran	0.03
1,2,3,4,7,8-hexachlorodibenzofuran	0.1
1,2,3,6,7,8-hexachlorodibenzofuran	0.1
1,2,3,7,8,9-hexachlorodibenzofuran	0.1
2,3,4,6,7,8-hexachlorodibenzofuran	0.1
1,2,3,4,6,7,8-heptachlorodibenzofuran	0.01
1,2,3,4,7,8,9-heptachlorodibenzofuran	0.01
Octachlorodibenzofuran	0.0003

TABLE 7 TO SUBPART HHHHHHH OF PART 63—CALIBRATION AND ACCURACY REQUIREMENTS FOR CONTINUOUS PARAMETER MONITORING SYSTEMS

If you monitor this parameter . . .	Then your accuracy requirements are . . .	And your inspection/calibration frequency requirements are . . .
1. Temperature (non-cryogenic temperature ranges).	±1 percent of temperature measured or 2.8 degrees Celsius (5 degrees Fahrenheit) whichever is greater.	Every 12 months.
2. Temperature (cryogenic temperature ranges).	±2.5 percent of temperature measured or 2.8 degrees Celsius (5 degrees Fahrenheit) whichever is greater.	Every 12 months.
3. Liquid flow rate	±2 percent of the normal range of flow	a. Every 12 months. b. You must select a measurement location where swirling flow or abnormal velocity distributions due to upstream and downstream disturbances at the point of measurement do not exist.
4. Gas flow rate	±5 percent of the flow rate or 10 cubic feet per minute, whichever is greater.	a. Every 12 months. b. Check all mechanical connections for leakage at least annually. c. At least annually, conduct a visual inspection of all components of the flow CPMS for physical and operational integrity and all electrical connections for oxidation and galvanic corrosion if your flow CPMS is not equipped with a redundant flow sensor.
5. pH or caustic strength	±0.2 pH units	Every 8 hours of process operation check the pH or caustic strength meter's calibration on at least two points.

TABLE 7 TO SUBPART HHHHHHH OF PART 63—CALIBRATION AND ACCURACY REQUIREMENTS FOR CONTINUOUS PARAMETER MONITORING SYSTEMS—Continued

If you monitor this parameter . . .	Then your accuracy requirements are . . .	And your inspection/calibration frequency requirements are . . .
6. Conductivity	±5 percent of normal range	Every 12 months.
7. Mass flow rate	±5 percent of normal range	Every 12 months.
8. Pressure	±5 percent or 0.12 kilopascals (0.5 inches of water column) whichever is greater.	a. Calibration is required every 12 months. b. Check all mechanical connections for leakage at least annually. c. At least annually perform a visual inspection of all components for integrity, oxidation and galvanic corrosion if CPMS is not equipped with a redundant pressure sensor.

TABLE 8 TO SUBPART HHHHHHH OF PART 63—METHODS AND PROCEDURES FOR CONDUCTING PERFORMANCE TESTS FOR PROCESS VENTS

For each control device used to meet the emission limit in Table 1 or 2 to this subpart for the following pollutant . . .	You must . . .	Using . . .
1. Total hydrocarbons	a. Measure the total hydrocarbon concentration at the outlet of the final control device or in the stack.	Method 25A at 40 CFR part 60, appendix A–7. Conduct each test run for a minimum of 1 hour.
2. Total organic HAP	a. Measure the total organic HAP concentration at the outlet of the final control device or in the stack.	i. Method 18 at 40 CFR part 60, appendix A–6 and ASTM D6420–99.[a] Conduct each test run for a minimum of 1 hour. ii. Method 320 at 40 CFR part 63, appendix A and ASTM D6348–03.[a] Conduct each test run for a minimum of 1 hour.
3. Vinyl chloride	a. Measure the vinyl chloride concentration at the outlet of the final control device or in the stack.	Method 18 at 40 CFR part 60, appendix A–6. Conduct each test run for a minimum of 1 hour.
4. Hydrogen chloride	a. Measure hydrogen chloride concentrations at the outlet of the final control device or in the stack.	i. Method 26 at 40 CFR part 60, appendix A–8, collect 60 dry standard liters of gas per test run; or ii. Method 26A at 40 CFR part 60, appendix A–8, collect 1 dry standard cubic meter of gas per test run.
5. Dioxin/furan	a. Measure dioxin/furan concentrations on a toxic equivalency basis (and report total mass per isomer) at the outlet of the final control device or in the stack.	Method 23 at 40 CFR part 60, appendix A–7 and collect 5 dry standard cubic meters of gas per test run.
6. Any pollutant from a continuous, batch, or combination of continuous and batch process vent(s).	a. Select sampling port locations and the number of traverse points.	Method 1 or 1A at 40 CFR part 60, appendix A–1.
	b. Determine gas velocity and volumetric flow rate.	Method 2, 2A, 2C, 2D, 2F, or 2G at 40 CFR part 60, appendix A–1 and A–2.
	c. Conduct gas molecular weight analysis and correct concentrations the specified percent oxygen in Table 1 or 2 to this subpart.	Method 3, 3A, or 3B at 40 CFR part 60, appendix A–2 using the same sampling site and time as HAP samples.
	d. Measure gas moisture content	Method 4 at 40 CFR part 60, appendix A–3.

[a] Incorporated by reference, see § 63.14.

TABLE 9 TO SUBPART HHHHHHH OF PART 63—PROCEDURES FOR CONDUCTING SAMPLING OF STRIPPED RESIN AND PROCESS WASTEWATER

For demonstrating . . .	For the following emission points and types of processes . . .	Collect samples according to the following schedule . . .	
		Vinyl chloride . . .	Total non-vinyl chloride organic HAP . . .
Each stripped resin stream			
1. Initial compliance	a. Continuous	Every 8 hours or for each grade, whichever is more frequent during a 24 hour period.	Every 8 hours or for each grade, whichever is more frequent during a 24 hour period.
	b. Batch	1 grab sample for each batch produced during a 24 hour period.	1 grab sample for each batch produced during a 24 hour period.

TABLE 9 TO SUBPART HHHHHHH OF PART 63—PROCEDURES FOR CONDUCTING SAMPLING OF STRIPPED RESIN AND PROCESS WASTEWATER—Continued

For demonstrating . . .	For the following emission points and types of processes . . .	Collect samples according to the following schedule . . .	
		Vinyl chloride . . .	Total non-vinyl chloride organic HAP . . .
2. Continuous compliance	a. Continuous	On a daily basis, 1 grab sample every 8 hours or for each grade, whichever is more frequent during a 24 hour period.	On a monthly basis, 1 grab sample every 8 hours or for each grade, whichever is more frequent during a 24 hour period.
	b. Batch	On a daily basis, 1 grab sample for each batch produced during a 24 hour period.	On a monthly basis, 1 grab sample for each batch produced during a 24 hour period.
Each process wastewater stream			
3. Initial compliance	N/A	1 grab sample	1 grab sample.
4. Continuous compliance	N/A	1 grab sample per month	1 grab sample per month.

TABLE 10 TO SUBPART HHHHHHH OF PART 63—HAP SUBJECT TO THE RESIN AND PROCESS WASTEWATER PROVISIONS AT NEW AND EXISTING SOURCES

CAS No.	HAP	Analyte category	Test method
107211	Ethylene glycol	Alcohol	SW–846–8015C.[a]
67561	Methanol	Alcohol	SW–846–8015C.[a]
75070	Acetaldehyde	Aldehyde	SW–846–8315A.[a]
50000	Formaldehyde	Aldehyde	SW–846–8315A.[a]
51285	2,4-dinitrophenol	SVOC	SW–846–8270D.[a]
98862	Acetophenone	SVOC	SW–846–8270D.[a]
117817	Bis(2-ethylhexyl) phthalate (DEHP)	SVOC	SW–846–8270D.[a]
123319	Hydroquinone	SVOC	SW–846–8270D.[a]
108952	Phenol	SVOC	SW–846–8270D.[a]
79345	1,1,2,2-tetrachloroethane	VOC	SW–846–8260B.[a]
106990	1,3-butadiene	VOC	SW–846–8260B.[a]
540841	2,2,4-trimethylpentane	VOC	SW–846–8260B.[a]
71432	Benzene	VOC	SW–846–8260B.[a]
108907	Chlorobenzene	VOC	SW–846–8260B.[a]
67663	Chloroform	VOC	SW–846–8260B.[a]
126998	Chloroprene	VOC	SW–846–8260B.[a]
98828	Cumene	VOC	SW–846–8260B.[a]
75003	Ethyl chloride (Chloroethane)	VOC	SW–846–8260B.[a]
100414	Ethylbenzene	VOC	SW–846–8260B.[a]
107062	Ethylene dichloride (1,2-Dichloroethane)	VOC	SW–846–8260B.[a]
75343	Ethylidene dichloride (1,1-Dichloroethane)	VOC	SW–846–8260B.[a]
74873	Methyl chloride (Chloromethane)	VOC	SW–846–8260B.[a]
75092	Methylene chloride	VOC	SW–846–8260B.[a]
110543	n-Hexane	VOC	SW–846–8260B.[a]
108883	Toluene	VOC	SW–846–8260B.[a]
71556/79005	Trichloroethane	VOC	SW–846–8260B.[a]
108054	Vinyl acetate	VOC	SW–846–8260B.[a]
593602	Vinyl bromide	VOC	SW–846–8260B.[a]
75014	Vinyl chloride	VOC	Method 107 at 40 CFR part 61, appendix B.
75354	Vinylidene chloride (1,1-Dichloroethylene)	VOC	SW–846–8260B.[a]
1330207	Xylenes (isomers and mixtures)	VOC	SW–846–8260B.[a]

[a] Incorporated by reference, see § 63.14.

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