



# Federal Register

---

**Wednesday,  
December 6, 2000**

---

**Part IV**

## **Environmental Protection Agency**

---

**40 CFR Part 63**

**National Emission Standards for  
Hazardous Air Pollutants: Generic  
Maximum Achievable Control Technology;  
Proposed Rule**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 63**

[FRL-6899-9]

RIN 2060-AH68

**National Emission Standards for Hazardous Air Pollutants: Generic Maximum Achievable Control Technology**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule; amendments.

**SUMMARY:** This action proposes amendments to the "generic" maximum achievable control technology (MACT) standards to add national emission standards for hazardous air pollutants (NESHAP) for four additional source categories: Cyanide Chemicals Manufacturing, Carbon Black Production, Ethylene Production, and Spandex Production. The generic MACT standards provide a structural framework allowing source categories with similar emission types and MACT control requirements to be covered under one subpart, thus promoting regulatory consistency in NESHAP development. The EPA has identified these four source categories as major sources of hazardous air pollutants (HAP), including cyanide compounds,

acrylonitrile, acetonitrile, carbonyl sulfide, carbon disulfide, benzene, 1,3 butadiene, toluene, and 2,4 toluene diisocyanate (TDI). Benzene is a known human carcinogen, and 1,3 butadiene is considered to be a probable human carcinogen. The other pollutants can cause noncancer health effects in humans. These proposed standards will implement section 112(d) of the Clean Air Act (CAA) by requiring all major sources to meet HAP emission standards reflecting the application of MACT.

**DATES:** *Comments.* Submit comments on or before February 5, 2001.

*Public Hearing.* If anyone contacts the EPA requesting to speak at a public hearing by December 26, 2000, a public hearing will be held on January 5, 2001.

**ADDRESSES:** *Comments.* Written comments should be submitted (in duplicate if possible) to: Air and Radiation Docket and Information Center (6102), Attention Docket Number A-97-17, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460. All technical comments pertaining solely to individual source categories should be submitted to the dockets established for the individual source categories (see *Docket* for individual docket numbers). The EPA requests a separate copy also be sent to Mr. Mark Morris (see **FOR FURTHER INFORMATION CONTACT**).

*Public Hearing.* If a public hearing is held, it will be held at the EPA's Office of Administration Auditorium, Research Triangle Park, North Carolina, beginning at 10:00 a.m.

*Docket.* Docket No. A-97-17 contains supporting information used in developing the generic MACT standards. Dockets established for each of the source categories proposed to be assimilated under the generic MACT standards with this proposal include: Cyanide Chemicals Manufacturing (Docket No. A-2000-14), Carbon Black Production (Docket No. A-98-10), Ethylene Production (Docket No. A-98-22), and Spandex Production (Docket No. A-98-25). These dockets include source category-specific supporting information. All dockets are located at the U.S. Environmental Protection Agency, Air and Radiation Docket and Information Center, Waterside Mall, Room M-1500, Ground Floor, 401 M Street SW, Washington, DC 20460, and may be inspected from 8:30 a.m. to 5:30 p.m., Monday through Friday, excluding legal holidays.

**FOR FURTHER INFORMATION CONTACT:** For information concerning the proposed NESHAP, contact the following at the Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711:

Information type	Contact	Group	Phone/facsimile/e-mail address
General .....	Mark Morris .....	Organic Chemicals Group .....	(919) 541-5416/(919) 541-3470/ morris.mark @epa.gov.
Cyanide chemicals manufacturing ..	Keith Barnett .....	Organic Chemicals Group .....	(919) 541-5605/(919) 541-3470/ barnett.keith @epa.gov.
Carbon black production .....	John Schaefer .....	Organic Chemicals Group .....	(919) 541-0296/(919) 541-3470/ schaefer.john @epa.gov.
Ethylene production .....	Warren Johnson .....	Organic Chemicals Group .....	(919) 541-5267/(919) 541-3470/ johnson.warren @epa.gov.
Spandex production .....	Elaine Manning .....	Waste and Chemical Processes Group.	(919) 541-5499/(919) 541-3470/ manning.elaine @epa.gov.
Public hearing .....	Maria Noell .....	Organic Chemicals Group .....	(919) 541-5607/(919) 541-3470/ noell.maria @epa.gov.

**SUPPLEMENTARY INFORMATION:**

**Comments**

Comments and data may be submitted by electronic mail (e-mail) to: a-and-r-docket@epa.gov. Electronic comments must be submitted as an ASCII file to avoid the use of special characters and encryption problems and will also be accepted on disks in WordPerfect® version 5.1, 6.1 or Corel 8 file format. All comments and data submitted in electronic form must note the appropriate docket number (see **ADDRESSES**). No confidential business information (CBI) should be submitted by e-mail. Electronic comments may be

filed online at many Federal Depository Libraries.

Commenters wishing to submit proprietary information for consideration must clearly distinguish such information from other comments and clearly label it as CBI. Send submissions containing such proprietary information directly to the following address, and not to the public docket, to ensure that proprietary information is not inadvertently placed in the docket: Attention: Mark Morris, c/o OAQPS Document Control Officer (Room 740B), U.S. EPA, 411 W. Chapel Hill Street, Durham NC 27701. The EPA

will disclose information identified as CBI only to the extent allowed by the procedures set forth in 40 CFR part 2. If no claim of confidentiality accompanies a submission when it is received by the EPA, the information may be made available to the public without further notice to the commenter.

**Public Hearing**

Persons interested in presenting oral testimony or inquiring as to whether a hearing is to be held should contact Ms. Maria Noell (see **FOR FURTHER INFORMATION CONTACT**) at least 2 days in advance of the public hearing. Persons

interested in attending the public hearing must also call Ms. Noell to verify the time, date, and location of the hearing. The public hearing will provide interested parties the opportunity to present data, views, or arguments concerning these proposed emission standards.

**Docket**

The docket is an organized and complete file of the record compiled by the EPA in the development of this rulemaking. The docket is a dynamic file because material is added throughout the rulemaking process. The docketing system is intended to allow members of the public and industries involved to readily identify and locate

documents so that they can effectively participate in the rulemaking process. Along with the proposed and promulgated standards and their preambles, the contents of the docket will serve as the record in the case of judicial review. (See section 307(d)(7)(A) of the CAA.) The regulatory text and other materials related to this rulemaking are available for review in the docket or copies may be mailed on request from the Air Docket by calling (202) 260-7548. A reasonable fee may be charged for copying docket materials.

**World Wide Web (WWW)**

In addition to being available in the docket, an electronic copy of this proposed rule is also available on the

WWW through the Technology Transfer Network (TTN). Following signature, a copy of the rule will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules <http://www.epa.gov/ttn/oarpg>. The TTN provides information and technology exchange in various areas of air pollution control. If more information regarding the TTN is needed, call the TTN HELP line at (919) 541-5384.

**Regulated Entities**

Categories and entities potentially regulated by this action include:

Category	NAICS code	SIC code	Examples of regulated entities
Industrial .....	325188, 325199 .....	2819, 2869 .....	Producers and coproducers of hydrogen cyanide and sodium cyanide.
	325182 .....	2895 .....	Producers of carbon black by thermal-oxidative decomposition in a closed system, thermal decomposition in a cyclic process, or thermal decomposition in a continuous process.
	325110 .....	2869 .....	Producers of ethylene from refined petroleum or liquid hydrocarbons.
	325222 .....	2824 .....	Producers of spandex by reaction spinning.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. To determine whether your facility is regulated by this action, you should examine the applicability criteria in § 63.1104 of the proposed subpart. If you have any questions regarding the applicability of this action to a particular entity, consult the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

**Outline**

The information presented in this preamble is organized as follows:

**I. Background**

- A. What is the source of authority for development of NESHAP?
- B. What criteria are used in the development of NESHAP?
- C. Why is the EPA proposing to include today's standards in the generic MACT standards?
- D. What are the proposed amendments to subpart YY and the subparts referenced by it?

**II. Cyanide Chemicals Manufacturing**

- A. Introduction
- B. Summary of Proposed Standards for Cyanide Chemicals Manufacturing

**C. Rationale for Selecting the Proposed Standards for Cyanide Chemicals Manufacturing**

**D. Summary of Environmental, Energy, Cost, and Economic Impacts**

**III. Carbon Black Production**

- A. Introduction
- B. Summary of Proposed Standards for Carbon Black Production
- C. Rationale for Selecting the Proposed Standards for Carbon Black Production
- D. Summary of Environmental, Energy, Cost, and Economic Impacts
- E. Solicitation of Comments

**IV. Ethylene Production**

- A. Introduction
- B. Summary of Proposed Standards for Ethylene Production
- C. Rationale for Selecting the Proposed Standards for Ethylene Production
- D. Summary of Environmental, Energy, Cost, and Economic Impacts
- E. Solicitation of Comments

**V. Spandex Production**

- A. Introduction
- B. Summary of Proposed Standards for Spandex Production
- C. Rationale for Selecting the Proposed Standards for Spandex Production
- D. Summary of Environmental, Energy, Cost, and Economic Impacts

**VI. Administrative Requirements**

- A. Executive Order 12866, Regulator Planning and Review
- B. Paperwork Reduction Act
- C. Executive Order 13132, Federalism

**D. Executive Order 13084, Consultation and Coordination with Indian Tribal Governments**

**E. Unfunded Mandates Reform Act of 1995**

**D. Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks**

**F. Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601, et seq.**

**G. National Technology Transfer and Advancement Act**

**H. Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks**

**I. Background**

*A. What is the Source of Authority for Development of NESHAP?*

Section 112 of the CAA requires us to list categories and subcategories of major sources and area sources of HAP and to establish NESHAP for the listed source categories and subcategories. The categories of major sources covered by today's proposed NESHAP were listed on the following dates: Cyanide Chemicals Manufacturing, July 16, 1992 (57 FR 31576); Carbon Black Production, June 4, 1996 (61 FR 28197); Ethylene Production, June 4, 1996 (61 FR 28197); and Spandex Production,

July 16, 1992 (57 FR 31576). A major source of HAP is defined as any stationary source or group of stationary sources within a contiguous area and under common control that emits or has the potential to emit, considering controls, in the aggregate, 9.1 megagrams per year (Mg/yr) (10 tons per year (TPY)) or more of any single HAP or 22.7 Mg/yr or more (25 TPY) of multiple HAP.

#### *B. What Criteria Are Used in the Development of NESHAP?*

Section 112 of the CAA requires us to establish NESHAP for the control of HAP from both new and existing major sources. The CAA requires the NESHAP to reflect the maximum degree of reduction in emissions of HAP that is achievable. This level of control is commonly referred to as MACT.

The MACT floor is the minimum control level allowed for NESHAP and is defined under section 112(d)(3) of the CAA. In essence, the MACT floor ensures that all major sources achieve the level of control already achieved by the better-controlled and lower-emitting sources in each source category or subcategory. For new sources, NESHAP cannot be less stringent than the emission control that is achieved in practice by the best-controlled similar source. The NESHAP for existing sources can be less stringent than standards for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources (or the best-performing 5 sources for categories or subcategories with fewer than 30 sources).

In developing MACT, we also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor based on the consideration of cost, nonair quality health and environmental impacts, and energy requirements.

#### *C. Why is the EPA Proposing to Include Today's Standards in the Generic MACT Standards?*

We are proposing NESHAP for the Cyanide Chemicals Manufacturing, Carbon Black Production, Ethylene Production, and Spandex Production source categories under the generic MACT standards to reduce the regulatory burden associated with the development of separate rulemakings. An owner or operator should consult the generic MACT standards for information on applicability of the standards to their source, compliance schedules, and standards. The generic MACT standards generally refer the

owner or operator to other subparts for requirements necessary to demonstrate compliance.

We are proposing to include the NESHAP for the Cyanide Chemicals Manufacturing, Carbon Black Production, Ethylene Production, and Spandex Production source categories in the generic MACT standards to simplify the rulemaking process, to minimize the potential for duplicative or conflicting requirements, to conserve limited resources, and to ensure consistency of the air emissions requirements applied to similar emission points. We believe that the generic MACT regulatory framework is appropriate for these source categories because it allows us to incorporate specific applicability and control requirements that reflect our decisions on these source categories while also utilizing generic requirements previously established for similar emission sources that we have determined are also applicable here.

Section 112(d) of the CAA requires that emission standards for control of HAP be prescribed unless, in our judgement, it is not feasible to prescribe or enforce emission standards. Section 112(h) identifies two conditions under which it is not considered feasible to prescribe or enforce emission standards. These conditions are: (1) If the HAP cannot be emitted through a conveyance device, or (2) if the application of measurement methodology to a particular class of sources is not practicable due to technological or economic limitations. If emission standards are not feasible to prescribe or enforce, then we may instead promulgate equipment, work practice, design, or operational standards, or a combination of them.

Common formats for emission standards include a percent reduction, concentration limit, or mass emission limit. In some instances, adoption of an emission standard may be feasible for certain sources within a category or subcategory and not for other sources within the same category or subcategory. In such cases, we may adopt both an emission standard and an alternative equipment, design, work practice, or operational standard, but only one type of standard will apply to a given source depending on the nature and configuration of that source.

Because today's proposed standards reference several other subparts to control emissions, the format of the standards (*i.e.*, emission standard or work practice) for each emission type is that of the subparts which are referenced. We developed the formats of the standards proposed today based on

the development of the formats for the existing generic standards.

#### *D. What Are the Proposed Amendments to Subpart YY and the Subparts Referenced By It?*

We are proposing to add sections to subpart YY and the subparts referenced by it that specify who has the authority to implement and enforce the subparts. These sections specify the authorities that will be retained by the EPA Administrator and the authorities that may be delegated to a State, local, or tribal agency. These proposed sections do not affect the stringency of the standards, nor would they increase the burden on a State, local, or tribal agency.

The proposed amendments clarify appropriate methods for demonstrating compliance with percent reduction requirements and emission concentration limits on combustion devices. The proposed amendments allow owners and operators to use either Method 25, 25A (under certain specific conditions), or 18 to demonstrate compliance with the HAP percent emission reduction requirement. However, if Method 18 is used, we clarify that only HAP that are present in the inlet to the device can be used to characterize the percent reduction across the device. Additionally, you must first determine which HAP are present in the inlet gas stream (*i.e.*, uncontrolled emissions) using process knowledge or a screening procedure. When using Method 25 or 25A, you must measure the inlet and outlet mass emissions as carbon.

We provided this clarification because when organic compounds are controlled by combustion processes, the organic pollutants emitted at the outlet of the device are not the same as those entering the inlet to the device and are typically unknown. Method 18, which measures specific, known compounds, will not yield accurate results unless it can be used to determine the percent reduction of known compounds across the device. Conversely, Method 25 measures total non-methane organic compounds and can be used to determine percent reduction across the combustion device regardless of how the combustion process affects the inlet and outlet streams. Under certain conditions (*i.e.*, controlled emissions concentrations less than 50 parts per million by volume (ppmv)), Method 25A may be used in lieu of Method 25 for determining the reduction across a combustion device.

In demonstrating compliance with the outlet concentration standard, you may use Method 18 or Method 25A. If

Method 18 is used, the resulting concentration must be reported as the compound or compounds measured; however, if Method 25A is used, the concentration must be reported as carbon.

## II. Cyanide Chemicals Manufacturing

### A. Introduction

#### 1. What Are the Primary Sources of Emissions and What Are the Emissions?

We have identified the following HAP emission sources at cyanide chemicals manufacturing facilities: (1) Process vents, (2) storage vessels, (3) equipment leaks, (4) transfer operations, and (5) wastewater treatment operations. We estimate that HAP emissions from process vents and equipment leaks account for more than 96 percent of the total HAP emissions from the source category.

We estimate nationwide HAP emissions from the cyanide chemicals manufacturing industry to be 239 Mg/yr (263 TPY). The predominant HAP emitted from this source category include cyanide compounds (hydrogen cyanide (HCN) and sodium cyanide), acrylonitrile, and acetonitrile.

#### 2. What Are the Health Effects Associated With the HAP Emitted?

In the following paragraphs, we present a discussion of the effects of inhalation exposure to cyanide compounds, acrylonitrile, and acetonitrile.

**Cyanide Compounds.** Acute inhalation exposure to high concentrations of cyanide compounds can be rapidly lethal. Acute inhalation of HCN at lower concentrations can cause a variety of adverse health effects in humans, such as weakness, headache, nausea, increased rate of respiration, and eye and skin irritation. Chronic inhalation exposure to cyanide compounds can result in effects on the central nervous system, such as headaches, dizziness, numbness, tremor, and loss of visual acuity. Other chronic exposure effects in humans include cardiovascular and respiratory effects, an enlarged thyroid gland, and irritation to the eyes and skin.

**Acrylonitrile.** Acute inhalation exposure of workers to acrylonitrile has been associated with the occurrence of low-grade anemia, cyanosis, leukocytosis, kidney irritation, mild jaundice, and labored breathing. Symptoms include mucous membrane irritation, headaches, dizziness, nausea, apprehension and nervous irritability, muscle weakness, and convulsions.

Chronic inhalation exposure of workers to acrylonitrile has been

associated with headaches, nausea, and weakness. There are also several studies that indicate a statistically significant increase in the incidence of lung cancer of workers with chronic inhalation exposure to acrylonitrile.

**Acetonitrile.** Acute inhalation exposure of humans to acetonitrile in concentrations up to 500 ppmv can cause irritation of mucous membranes, and higher concentrations have been associated with weakness, nausea, convulsions and death. Chronic inhalation exposure to acetonitrile results in cyanide poisoning from metabolic release of cyanide after absorption. The major effects associated with cyanide poisoning consist of headaches, numbness, and tremors.

### B. Summary of Proposed Standards for Cyanide Chemicals Manufacturing

#### 1. What Is the Source Category To Be Regulated?

The Cyanide Chemicals Manufacturing source category includes facilities that are engaged in the manufacture of HCN or sodium cyanide: (1) By reaction of methane and ammonia over a catalyst (the Blausaure Methane Anlage (BMA) process), (2) by reaction of methane and ammonia in the presence of oxygen over a catalyst (the Andrussow process), or (3) as a by-product of the acrylonitrile production process (the Sohio production process). The source category also includes facilities that manufacture sodium cyanide via the neutralization process, sometimes referred to as the "wet process," in which HCN reacts with sodium hydroxide solution, usually in a system that includes the evaporation of water and crystallization of the product.

#### 2. What Is the Affected Source?

For the Cyanide Chemicals Manufacturing source category, the affected source includes each cyanide chemicals manufacturing process unit, along with associated wastewater streams and equipment, that is located at a major source. A cyanide chemicals manufacturing process unit is the equipment assembled and connected by hard-piping or duct work that processes raw materials to manufacture, store, and transport a cyanide chemicals product. The proposed definition of "cyanide chemicals manufacturing process unit" also contains a list of equipment that is part of the process unit. This list includes reactors and associated unit operations; associated recovery devices; feed, intermediate, and product storage vessels; product transfer racks and connected ducts and piping; pumps, compressors, agitators, pressure-relief

devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems; and control devices.

We have identified four distinct processes used to produce cyanide chemicals. Therefore, the definition of affected source for cyanide chemicals manufacturing specifies that a cyanide chemicals manufacturing process unit may be any one of the following: an Andrussow process unit, a BMA process unit, a sodium cyanide process unit, or a Sohio HCN process unit. The definitions of each of these types of process units describes the process and delineates where the process unit begins and ends.

The Andrussow and BMA process units begin with (and include) the raw material storage tanks and end at the point at which refined HCN enters a reactor in a downstream process or is shipped offsite.

A Sohio HCN process unit, in which HCN is produced as a byproduct of acrylonitrile, begins at the point where the HCN leaves the unit operation where the HCN is separated from acrylonitrile. This unit operation is often referred to as the "light ends column." As with all the other HCN process units, the Sohio HCN process unit ends at the point at which refined HCN enters a reactor in a downstream process or is shipped offsite.

The sodium cyanide process unit begins just prior to the unit operation where refined HCN is reacted with sodium hydroxide and ends at the point just prior to where the solid sodium cyanide product is shipped offsite or enters a reactor in a downstream process.

#### 3. What Are the Emission Limits, Operating Limits, and Other Standards?

We are proposing NESHAP that would regulate HAP emissions from process vents from continuous unit operations, storage vessels storing HCN product, transfer operations, wastewater, and equipment leaks (from compressors, agitators, pressure relief devices, pumps, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems). We are proposing the same requirements for existing and new sources, except for wastewater. The following are summaries of the proposed requirements for each type of emission point.

a. **Process Vents from Continuous Unit Operations.** For process vents from continuous unit operations, we are proposing different standards for each of the four types of cyanide chemicals manufacturing process units. For each

process unit type, we are proposing that overall HAP emissions from the process vents within the process unit be reduced by a specified amount. The required emissions reductions would depend on the type of process unit. The owner or operator would have the option of controlling some vents and not others; or controlling all vents to different levels, as long as the overall process unit process vent HAP emissions standard is achieved. We are also proposing that owners or operators may comply by reducing emissions of HAP from each individual process vent to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions). The proposed emissions reductions requirements are summarized below by type of cyanide chemicals manufacturing process.

*Andrussow and BMA HCN production process unit.* Except during periods of startup, shutdown and malfunction, we are proposing that HAP emissions from process vents from Andrussow and BMA HCN production process units be reduced by 99 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions).

During periods of startup, shutdown or malfunction, we are proposing that process vent HAP emissions be vented through a closed vent system to a flare, or reduced from each process vent by 98 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions).

*Sohio HCN production process unit.* For process vents from Sohio HCN production process units, we are proposing that overall process vent HCN emissions from the process unit be reduced by 98 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions), or by venting emissions to a flare.

*Sodium cyanide production process units (wet-end and dry-end process vents).* In the proposed rule, we define wet-end process vents as process vents that originate from the reactor, crystallizer, or any other unit operation in the wet end of the sodium cyanide process unit; and we define dry-end process vents as process vents originating from the drum filter or any other unit operation in the dry end of a sodium cyanide manufacturing

process unit. We are proposing that overall HAP emissions from wet-end process vents be reduced by 98 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions), or by venting emissions to a flare. We are proposing requirements that overall HAP emissions from dry-end process vents be reduced by 98 weight-percent.

b. *Storage Vessels.* We are proposing that HAP emissions from storage vessels that contain HCN be vented through a closed vent system to a flare or any combination of control devices that reduces HAP emissions by 98 weight-percent.

c. *Transfer Operations.* We are proposing requirements to control emissions for each transfer rack that is used to load HCN into tank trucks or rail cars by venting emissions through a closed vent system to a flare or any combination of control devices that reduces emissions of HCN by 98 weight-percent.

d. *Equipment Leaks.* We are proposing requirements to control HCN emissions through the implementation of a leak detection and repair (LDAR) program for equipment that contains or contacts HCN and operates 300 hours or more per year.

We are proposing that an owner or operator may comply with the rule by complying with either 40 CFR part 63, subpart TT, National Emission Standards for Equipment Leaks—Control Level 1; or 40 CFR part 63, subpart UU, National Emission Standards for Equipment Leaks—Control Level 2. The provisions of these subparts control emissions from equipment leaks by work practices (e.g., inspection for leaks, instrument monitoring) and equipment specifications. Both of these subparts require that you inspect equipment for leaks and repair detected leaks.

e. *Wastewater.* We are proposing control requirements for HAP emissions from process wastewater streams at new facilities where the process water contains HAP that are discarded from a cyanide chemicals manufacturing process unit. We are proposing that the HAP emissions from the process wastewater must be suppressed while the wastewater is being conveyed to a treatment device, and we are specifying requirements for the controls to reduce the HCN and acetonitrile concentration in the process wastewater. We are proposing that the treatment device achieve 95 percent removal of HAP, and that vents on the treatment device be

controlled to reduce HAP emissions by 98 percent.

#### 4. What Are the Testing and Initial and Continuous Compliance Requirements?

We are proposing testing and initial and continuous compliance requirements that are, where appropriate, based on procedures and methods that we have previously developed and used for emission point sources similar to those for which standards are being proposed today. For example, we are proposing control applicability determination procedures, performance tests, and test methods to determine whether a process vent stream is required to apply control devices and to demonstrate that the allowed emission levels are achieved when controls are applied. The proposed requirements are dependent on the control device selected.

We are proposing control applicability determination procedures to measure process vent flow rate and process vent HAP concentration measurement. The proposed test methods parallel what we have used for process vent organic HAP emission point sources in previous standards (e.g., the Hazardous Organic NESHAP (HON)). For measuring vent stream flow rate, we propose the use of Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A. For measuring total vent stream HAP concentration to determine whether it is below a specified level, we propose the use of Method 18 of 40 CFR part 60, appendix A.

Additionally, we are proposing to require initial performance tests for all control devices other than flares and certain boilers and process heaters used as control devices for HAP emissions from process vents. As with the HON, we are not proposing a requirement to perform an initial performance test for boilers and process heaters larger than 44 megawatts (MW) (150 million British thermal units per hour (Btu/hr)) because they operate at high temperatures and residence times. Analysis shows that when vent streams are introduced into the flame zone of these boilers and process heaters, greater than 98 weight-percent of organic HAP emissions are reduced, or an outlet concentration of 20 ppmv organic HAP is achieved. For flares, a percent reduction or outlet concentration measurement is not feasible. Therefore, we determined that a performance test is not necessary if the control device is a boiler, a process heater larger than 44 MW (150 million Btu/hr), or a flare. For all other types of control devices, the proposed NESHAP require the owner or operator to conduct a performance test to demonstrate that

the control device can achieve the required control level and to establish operating parameters to be maintained to demonstrate continuous compliance. The proposed requirements for cyanide chemicals manufacturing list the parameters that can be monitored for combustion devices. For other control devices, we require that an owner or operator establish site-specific parameter ranges for monitoring purposes through the Notification of Compliance Status report and operating permit. Parameters selected are required to be good indicators of continuous control device performance.

In addition to testing and monitoring of emissions control equipment, we are also proposing that the closed vent system that routes emissions to control equipment be initially and annually tested for HAP emission leaks (*i.e.*, measurement greater than 500 ppmv). If a leak is detected, we would require that you eliminate the leak and monitor equipment (no later than 15 calendar days after the leak is detected).

#### 5. What Are the Notification, Recordkeeping, and Reporting Requirements?

We are proposing notification, recordkeeping, and reporting requirements in accordance with the General Provisions (40 CFR part 63, subpart A) and other previously promulgated NESHAP for similar source categories.

We are proposing that owners or operators of cyanide chemicals manufacturing affected sources submit the following four types of reports: (1) Initial Notification, (2) Notification of Compliance Status, (3) periodic reports, and (4) other reports. Records of reported information and other information necessary to document compliance with the standards would be required to be kept for 5 years. Equipment design records would be required to be kept for the life of the equipment.

For the Initial Notification, we are proposing that you list the cyanide chemicals manufacturing processes at your facility, and which provisions may apply. The Initial Notification must also state whether your facility can achieve compliance by the specified compliance date. You must submit this notification within 1 year after the date of promulgation for existing sources, and within 180 days before commencement of construction or reconstruction of an affected source.

For the Notification of Compliance Status report, we are proposing that you submit the information necessary to demonstrate that compliance has been

achieved, such as the results of performance tests and design analyses. For each test method that you use for a particular kind of emission point (*e.g.*, process vent), you must submit one complete test report. This notification must also include the specific range established for each monitored parameter for each emission point for demonstrating continuous compliance, and the rationale for why this range indicates proper operation of the control device.

For periodic reports, we are proposing that you report periods when the values of monitored parameters are outside the ranges established in the Notification of Compliance Status report. For process vents, records of continuously monitored parameters must be kept. For some emission source types, such as storage vessels, equipment (*e.g.*, valves, pumps), and certain control devices (*e.g.*, flares), periodic inspections or measurements are required instead of continuous monitoring. Records that such inspections or measurements were performed must be kept, but results are included in your periodic report only if there is problem. For example, for equipment associated with a cyanide chemicals manufacturing process unit, inspections and/or leak detection monitoring records must be kept. However, the results of such monitoring must be submitted in the periodic report only if a leak is detected. We are proposing that the owner or operator submit these reports semiannually, unless monitored parameter values for a particular emission point are outside the established range greater than a specified percentage of the operating time, or if a problem is found during periodic inspections or measurements, whereby quarterly reporting is required.

Other proposed reporting requirements include reports to notify the regulatory authority before or after a specific event (*e.g.*, if a process change is made, requests for extension of repair period).

#### *C. Rationale for Selecting the Proposed Standards for Cyanide Chemicals Manufacturing*

##### 1. How Did EPA Select the Source Category?

On February 12, 1998 (63 FR 7155), we combined the HCN production and sodium cyanide production source categories into a new major source category called Cyanide Chemicals Manufacturing. Some facilities produce sodium cyanide and HCN in the same process train (*i.e.*, using the same or linked equipment); therefore, we decided to combine these two source

categories because it makes more sense to have facilities subject to one rule rather than two separate rules for different parts of their process.

The Cyanide Chemicals Manufacturing source category includes facilities that manufacture HCN using any of the following methods: The BMA production process, the Andrussow production process, and as a byproduct of the Sohio HCN production process. The source category also includes facilities that manufacture sodium cyanide via the neutralization process (or the "wet process"). We defined the source category to include these specific production processes because these are the only processes we identified that manufacture HCN and sodium cyanide in the United States.

Section 112(d)(1) of the CAA gives us the authority to " \* \* \* distinguish among classes, types, and sizes of sources within a category \* \* \*" when developing standards. Subcategories, or subsets of similar emission sources within a source category, may be defined if technical differences in emissions characteristics, processes, control device applicability, or opportunities for pollution prevention exist within the source category (57 FR 31576). Specific examples of these differences include the types of products, process equipment differences, the type and level of emission controls, emissions sources, and any other factors that would impact a MACT standard.

We did not identify differences in the four cyanide chemicals manufacturing processes (the Andrussow process, the BMA process, the Sohio HCN production process, and the sodium cyanide process) included in the source category that we believe meet the criteria presented above for subcategorization. All four processes emit cyanide chemicals (HCN and sodium cyanide), acetonitrile, and/or acrylonitrile. In addition, facilities using each process type commonly utilize some form of combustion to reduce HAP emissions from point sources. Furthermore, the type of cyanide chemicals manufacturing process does not affect the ability of a facility to reduce fugitive HAP emissions. Therefore, because these processes have similar emissions characteristics, control device applicability, and opportunities for pollution prevention, we determined that it was not necessary to divide this source category into subcategories.

## 2. How Did EPA Select the Affected Source?

The affected source is the group of unit operations, equipment, and emission points that are subject to the proposed NESHAP. The affected source can be defined as narrowly as a single item of equipment or as broadly as all equipment at the plant site that is used to manufacture the product that defines the source category. A major factor that we considered in selecting the affected source for the Cyanide Chemicals Manufacturing source category was the relationship between the affected source definition and the format of the standards.

The format of the standards for process vents is a process-unit-wide emission limit (*i.e.*, specified percent emissions reductions from all process vents in the process unit). This provides an owner or operator the option of selecting the most cost-effective level of control for each individual process vent, as long as the overall emissions limit is achieved. To accommodate this format, it was necessary to define the affected source to include all process vents in a process unit.

The affected source also defines the collection of equipment that you would evaluate to determine whether replacement of components at an existing affected source would qualify as reconstruction. If we define the affected source narrowly, it could affect whether some parts of a process unit would be subject to new source or existing source requirements. Since we are proposing the same requirements for existing and new sources for cyanide chemicals manufacturing emission points, the only implication for narrowly defining the cyanide chemicals manufacturing affected source would be when the source would have to comply with the standards.

We are proposing the process unit that manufactures cyanide chemicals as the foundation for the affected source. We are proposing a definition of the cyanide chemicals manufacturing process unit as a collection of equipment, assembled and connected by hard-piping or duct work, that is used to process raw materials to manufacture, store, and transport a cyanide chemicals product.

Of the five types of emission points at facilities that manufacture cyanide chemicals (process vents, storage vessels, equipment leaks, transfer operations, and wastewater), all except wastewater are typically located within a cyanide chemicals production process unit. Wastewater that is generated within a process unit is often routed

outside the unit for treatment and discharge. In addition, some equipment (*i.e.*, pumps, valves, compressors, etc.) that is used to transport chemicals may be located outside of the cyanide chemicals manufacturing process unit. Therefore, we have proposed a definition of the affected source to include each cyanide chemicals manufacturing process unit and all associated waste management units, maintenance wastewater, and equipment in HAP service.

Cyanide chemicals production process units are seldom "stand-alone" facilities. Rather, the production of cyanide chemicals is usually part of an integrated facility. Therefore, the point at which a cyanide chemicals manufacturing process unit begins and ends is not always obvious. Because of this, it is necessary to define the boundaries of the affected source.

As discussed previously, four distinct processes are included in the source category. The proposed rule specifies that a cyanide chemicals manufacturing process unit can be either an Andrussow process unit, a BMA process unit, a sodium cyanide process unit, or a Sohio HCN production process unit. The boundaries of the affected source are described in the definitions of the individual types of process units. We determined that a common demarcation of the end point of the affected source is appropriate for all four process types, but the beginning point needs to be defined separately for each type of process unit.

Cyanide chemicals product is either loaded into a tank truck or railcar, or is used as a raw material in another process at the plant site or an adjacent plant site. Other production processes for which HCN may be used as a raw material include processes that produce acetone cyanohydrin (an intermediate of the methyl methacrylate production process), adiponitrile, chelating agents, or cyanuric chloride. We considered including downstream production process HCN emission points under the cyanide chemicals affected source. However, we determined that production processes where HCN is used as a raw material are covered, or will be covered, by other 40 CFR part 63 subparts. For example, chelating agents production will be covered by the Miscellaneous Organic Chemical Manufacturing NESHAP, scheduled for proposal in the summer of 2000. Cyanuric chloride is an intermediate product and will be covered by either the Pesticide Active Ingredients NESHAP (40 CFR part 63, subpart MMM) or the Miscellaneous Organic Chemical Manufacturing NESHAP.

Acetone cyanohydrin and adiponitrile production are subject to the HON (40 CFR part 63, subpart F).

Therefore, we determined that the affected source should end at the point that the cyanide chemicals product is either shipped offsite or is used as a raw material in a downstream process. This means that piping and associated equipment (pumps, valves, etc.) up to the point where the cyanide chemicals are used in the downstream process (*i.e.*, at the reactor) would be included in the cyanide chemicals affected source. We believe that this is necessary to ensure that potential HAP emissions from this equipment are covered by a 40 CFR part 63 subpart.

As noted above, we believe that the starting point of the affected source needs to be defined for each type of process. The Andrussow and BMA processes are straightforward because raw materials are reacted to produce HCN. Therefore, for these two processes, we defined the beginning of the affected source as the point at which raw materials are stored.

In the Sohio HCN production process, the primary product produced is acrylonitrile, and HCN is manufactured as a byproduct. The acrylonitrile production process is covered under the HON, although HCN emissions are not subject to control under the HON. Therefore, we needed to determine the point in the Sohio HCN production process where the Cyanide Chemicals Manufacturing source category begins.

We considered including all parts of the Sohio production process that contained HCN. However, because the Sohio production process is covered under the HON, many of the streams containing HCN may already be controlled to the HON level of control. Although HCN is not covered by the HON (*i.e.*, HCN is not included in table 2 to 40 CFR part 63, subpart F), the types of control devices (*i.e.*, combustion devices) utilized by Sohio facilities to comply with the HON also reduce HCN emissions. As a result, we concluded that the burden of overlapping standards would not justify the very small potential for additional HCN reductions.

We wanted to define a point so that there would be no overlap between a HON affected source and a cyanide chemicals affected source. There is a point in the Sohio production process where the HCN is separated from the acrylonitrile, typically in a unit operation referred to as the "light ends column." Therefore, we defined the beginning of the Sohio HCN production process unit as the point the HCN leaves the unit operation where the HCN is



separated from the acrylonitrile. Because of our concern about the potential for overlapping requirements affecting a Sohio production process unit, we are specifically requesting comment on our proposed definition for the cyanide chemicals manufacturing affected source.

A primary raw material used in the production of sodium cyanide is HCN. Hydrogen cyanide that is produced in an Andrussow, BMA, or Sohio production process unit can be fed directly into a process to make sodium cyanide. Therefore, it was necessary to delineate the boundaries between an HCN process unit and a sodium cyanide process unit. Most commonly, HCN is refined in the HCN process and then fed into a reactor, where it is reacted with sodium hydroxide to form sodium cyanide. Therefore, we defined the beginning of the sodium cyanide process unit as the unit operation where refined HCN is reacted with sodium hydroxide. However, some facilities do not refine the HCN prior to reacting it with sodium hydroxide. In these cases, raw HCN is usually sent to an absorber, where it is absorbed into a sodium hydroxide solution to form sodium cyanide. Since the emission stream from this absorber is comparable to the emission stream from an absorber in a HCN process, we considered this absorber to be part of the HCN process unit, rather than part of the sodium cyanide process unit. Therefore, in situations where raw HCN is reacted with sodium hydroxide prior to being refined, we clarified that the sodium hydroxide process begins at the point that the aqueous sodium cyanide stream leaves the unit operation where the sodium cyanide is formed.

Additionally, in order to define the point at which the sodium cyanide production process begins, we are proposing definitions for raw HCN and refined HCN. In the proposed NESHAP, we have defined raw HCN as HCN that has not been through the refining process and usually has an HCN concentration less than 10 percent. We have also proposed a definition of refined HCN to mean the HCN that has been through the refining process and usually contains an HCN concentration greater than 99 percent. We are specifically requesting comments on the proposed definitions for raw HCN and refined HCN, as well as the point at which the sodium cyanide production process begins.

### 3. How Did EPA Select the Basis and Level of the Proposed NESHAP for Existing and New Sources?

We identified 16 facilities that manufacture cyanide chemicals which we believe represent the entire industry in the United States. For existing sources, the CAA requires us to establish emission standards that are at least as stringent as “\* \* \* the average emission limitation achieved by the best performing five sources \* \* \*” for categories or subcategories with fewer than 30 sources. For new sources, emission standards “\* \* \* shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source.”

The term “average” is not defined in section 112(d)(3) of the CAA. We have the discretion within the statutory framework to set MACT floors at appropriate levels, and we have interpreted the term “average” to mean the mean, median, mode, or some other measure of central tendency (59 FR 29196).

We chose the median (the value in a set of measurements below and above which there are an equal number of values, when the measurements are arranged in order of magnitude) as the measure of central tendency in this MACT floor analysis for existing sources. We found that, for this source category, the arithmetic mean resulted in a level of control that was not representative of any actual control technology. Using a median allowed us to select a MACT floor that corresponds directly to the level of control represented by a particular control device. Also, because the data set we used in our MACT floor analysis consists of data from only 16 facilities, we did not use a mode, which is more appropriate for large data sets.

We also considered whether to separate emission sources into groups by emission source type (e.g., tanks, process vents, fugitive emission sources) based on equipment type, equipment size, equipment contents, stream characteristics, or control device applicability. Because of differences in emissions characteristics and vent stream characteristics, we separated the emission points in the Cyanide Chemicals Manufacturing source category by emission source type. We grouped the emission points into one of the following: Process vents, storage vessels, wastewater streams, equipment leaks, or transfer operations.

In addition, we may make grouping decisions within each emission source type based on equipment type, equipment size, equipment contents,

stream characteristics, or other elements that could affect the emission potential of an emission point or the ability to reduce emissions from that emission point. We evaluated whether the different types of cyanide chemicals manufacturing processes should be considered for each emission source type. We concluded that for storage vessels, equipment leaks, wastewater, and transfer operations, the elements that can affect the emission potential of an emission point or the ability to reduce emissions from the emission point were not influenced by the type of process. For example, the ability to control HCN emissions from a storage vessel is not dependent on the type of process.

We did create groupings for process vents. Because of similarities in the types of unit operations and types of control devices being used in the Andrussow and BMA production processes, we grouped and analyzed these two processes together to determine the MACT floor for process vents. We did not include process vents from the Sohio HCN production process in this group, primarily because of the differences in process operations and controls. Specifically, the Sohio HCN production process vents typically have much lower emissions and are typically controlled by using a flare, while emissions from process vents in the Andrussow and BMA processes are somewhat higher and are typically controlled by a boiler.

Process vents in the sodium cyanide process were separated into wet-end process vents and dry-end process vents to determine the MACT floor. We did this primarily because emissions from dry-end process vents are particulate cyanide chemicals (i.e., solid sodium cyanide), rather than gaseous emissions. Therefore, the types of controls used in the dry end may be different from those used in the wet end.

As previously discussed, the Cyanide Chemicals Manufacturing source category has fewer than 30 sources, so the MACT floor must be based on the best performing five sources. We determined the best performing cyanide chemicals manufacturing process units for each emission source type: Process vents (Andrussow/BMA process, Sohio HCN production process, wet-end sodium cyanide process vents, and dry-end sodium cyanide process vents), storage vessels, transfer operations, equipment leaks, and wastewater. If data were not available for each emission source type at five or more facilities, we determined the MACT floor based on the number of facilities for which data were available. The

following paragraphs discuss the MACT floor analysis for each emission source type.

a. *Process Vents.* We considered two basic measures of performance for determining the best performing sources. We considered a HAP emission factor, expressed as HAP emissions per unit of production. We also considered an overall process unit HAP emission reduction, expressed as a percent HAP reduction. Emission factors were calculated for each cyanide chemicals manufacturing process unit, but we rejected these factors for determining the MACT floor because we could not verify information on production rates, and the accuracy and bases of the emission rates were not always apparent. We, therefore, used the percent emission reduction across the process as the basis for ranking facilities within each process type because a percent emission reduction is less sensitive to the mass emission rate and does not rely on production rate. This approach was selected to determine the MACT floor levels of control for process vents, and the proposed standard is expressed as a required percent HAP emission reduction.

The following discussion presents the results of our MACT floor analysis for process vents for each type of cyanide chemicals manufacturing process.

*Andrussow/BMA process.* In our MACT floor analysis, we considered nine facilities that use the Andrussow or BMA process. All nine facilities reported that they use combustion to control HAP emissions from process vents. Of these nine facilities, we had control efficiency data for seven facilities. The emission reduction for all of the five best performing facilities is 99 weight-percent or greater. Therefore, we concluded that the MACT floor for existing sources is 99 weight-percent.

To determine the MACT floor for new sources, we attempted to determine the best performing source. We evaluated the reported control efficiencies for the five best performing sources in this group. All of the sources apply some form of combustion; however, we were unable to identify any technical basis for the reported differences in control efficiencies for these combustion devices. Therefore, we selected the MACT floor for new sources as 99 weight-percent.

All of the five best performing sources controlled emissions during startup, shutdown, or malfunction events using a flare. In general, we assume that a properly operated flare will achieve an emission reduction of 98 weight-percent. Therefore, we determined that the MACT floor for startup, shutdown,

or malfunction events for new and existing process vents is a flare or a 98 weight-percent emission reduction.

To select the proposed MACT for process vents from the Andrussow/BMA process, we considered above-the-floor options for existing and new sources. As previously discussed, we could not identify the technical basis for the differences in reported emissions reductions for the combustion devices represented by the MACT floor. Thus, all of the combustion devices included in the MACT floor analysis were considered to be equivalent. Therefore, we did not identify a control technology more stringent than the MACT floor for process vents in the Andrussow or BMA processes. We are proposing that MACT for process vents from the Andrussow/BMA production process is the level of control represented by the MACT floor (*i.e.*, a 99 weight-percent emission reduction).

*Sodium cyanide (wet-end) process.* We had information for three sodium cyanide facilities that have wet-end process vents. One facility had uncontrolled process vents, and the other two facilities each had an emission reduction of 98 weight-percent based on the use of combustion devices and a median emission reduction of 98 weight-percent. Therefore, we determined that the MACT floor for new and existing sources is 98 weight-percent based on the use of a combustion device.

To select MACT for wet-end process vents, we considered the impacts of above-the-floor options for existing and new sources. As shown above, two of the three sodium cyanide facilities included in the MACT floor analysis are controlled, and we believe that the incremental costs (and the associated cost effectiveness) of achieving a small emission reduction greater than 98 weight-percent would be disproportional to the additional HAP emission reduction that would be achieved (*i.e.*, it would not be cost effective to require a facility to remove an existing combustion device and replace it with one that gets an additional 1 percent emission reduction). As a result, we did not perform an analysis of above-the-floor control technologies for wet-end process vents at sodium cyanide production facilities. Therefore, we are proposing that MACT for process vents in the wet end of sodium cyanide production facilities for existing and new sources is a 98 weight-percent emission reduction (*i.e.*, the MACT floor).

*Sodium cyanide (dry-end) process.* Information was available for two sodium cyanide facilities with dry-end

process vents. We had control efficiency data for both of these facilities. The control efficiencies were 83 weight-percent based on a cyclonic dust collector and 98 weight-percent based on a caustic scrubber, with the average emission reduction being 90 weight-percent. Therefore, we determined that the MACT floor for existing sources is 90 weight-percent and the MACT floor for new sources is 98 weight-percent.

To select MACT for dry-end process vents at existing sources, we evaluated the impacts of the MACT floor for new sources. We estimate that the incremental cost effectiveness associated with raising the existing source dry-end process vent emission reduction requirement from 90 weight-percent to 98 weight-percent is reasonable; therefore, we selected 98 weight-percent as MACT for existing sources.

We did not identify an option more stringent than the MACT floor for new sources. Therefore, we are proposing that MACT for dry-end process vents at new sources is the MACT floor.

*Sohio HCN production process.* There are five facilities using the Sohio HCN production process that were considered in the MACT floor analysis. Of these five facilities, we have control efficiency data for four facilities. The emission reduction ranges from 97.8 to 98 weight-percent. The median emission reduction for facilities for which there is available data is 98 weight-percent. Therefore, we determined that the MACT floor for new and existing sources is 98 weight-percent.

To select MACT for process vents from the Sohio HCN production process, we considered the impacts of above-the-floor options for existing and new sources. Several of the facilities included in the MACT floor analysis are controlled, and we believe that the incremental costs (and the associated incremental cost effectiveness) of achieving a small emission reduction greater than 98 weight-percent would be disproportional to the additional HAP emission reduction that would be achieved (*i.e.*, it would not be cost effective to require a facility to remove an existing combustion device and replace it with one that gets an additional 1 percent emission reduction). As a result, we did not perform an analysis of above-the-floor control technologies for process vents at Sohio HCN production facilities. Therefore, we are proposing that MACT for process vents in Sohio HCN production facilities for existing and new sources is the MACT floor.

*Alternative standards and compliance options (all process vents).* Many of the facilities for which we have data control every process vent to a degree that would meet the proposed level of control. Clearly, the overall reduction would comply with the required reduction if each vent was achieving the required emission reduction. In this situation, we did not believe that owners or operators needed to calculate a process-unit-wide emission reduction. Therefore, we added the option that each process vent could be controlled to the required level. We believe that this would reduce the burden of demonstrating compliance for owners and operators in this situation.

In the preamble to the proposed New Source Performance Standards (NSPS) for Air Oxidation Unit Process (48 FR 48932, October 21, 1983), we stated that 20 ppmv is the lowest outlet concentration achievable by combustion of low concentration streams (i.e., streams with concentrations less than around 2,000 ppmv). In addition, we expanded the application of this lower bound concentration performance standard to control/recovery devices other than incinerators (61 FR 43698, August 26, 1996) controlling volatile organic compounds. Therefore, for all instances where the selected level of control is a specified percent reduction, we are proposing an alternative that would allow compliance by achieving an outlet concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions) for each individual emission point (i.e., this option is not allowed if you are complying with a process-unit-wide process vent requirement). We believe that 20 ppmv is a reasonable level achievable for low-concentration streams. The exceptions to this are the requirements for sodium cyanide dry-end process vents. Since the emissions from these dry-end vents are particulate, the rationale for the 20 ppmv alternative is not applicable.

*Forms of the standards (all process vents).* The proposed standards for process vents include a combination of forms. For process vent streams controlled by control devices other than a flare, we selected the form of a numerical emission limitation (a weight-percent reduction or a concentration), either on an individual vent basis, or process-wide. This form was chosen based on the controls used at cyanide chemicals manufacturing facilities and the data available for our MACT analysis.

For vent streams controlled by a flare, we selected a form consisting of equipment and operating specifications, consistent with the form for flare requirements that we have specified for other industries. This is because it is very difficult to measure the emissions from a flare to determine its efficiency.

b. *Storage Tanks.* Information was available for HCN storage vessels at eight facilities. The HCN storage vessels are controlled at all eight facilities: Five with a flare as the primary control device, which we assume achieves 98 weight-percent emission reduction; one with a scrubber, which was reported to achieve an emission reduction of 98 weight-percent; one with a scrubber and flare in series; and one with a gas absorption column. We did not have control efficiency data for the facility with the scrubber and flare in series or for the facility with the gas absorption column; therefore, these facilities were not considered in the MACT floor analysis for storage vessels. The remaining facilities were ranked by emission reduction, and the five best performing facilities were determined to be those with the highest percentage emission reduction. The emission reduction associated with all of the top five facilities was 98 weight-percent. Thus, we determined the MACT floor for new and existing storage vessels to be an emission reduction of 98 weight-percent through the use of a flare or other control device.

To select the proposed MACT for storage vessels, we did not identify any control technologies more stringent than the MACT floor that would be applicable. Although combustion technologies exist that could achieve an emission reduction higher than the MACT floor level of 98 weight-percent, we believe that due to the intermittent nature of storage vessel emissions, flares are the most appropriate combustion control technology available for this emission source type. Thus, we did not perform an above-the-floor analysis for storage vessels. Therefore, we are proposing that MACT for storage vessels for existing and new sources is the level of control represented by the MACT floor.

The proposed storage vessel provisions include a combination of forms. For storage vessels that contain HCN that are controlled by a control device other than a flare, we are proposing an emission limitation in the form of a specified weight-percent requirement. We selected this form to give owners and operators the flexibility to install an applicable control technology to meet the MACT floor.

For storage vessels controlled by venting emissions to a flare, we have selected a form consisting of equipment and operating specifications, consistent with the format for flare requirements that we have specified for other industries. This is because it is very difficult to measure the emissions from a flare to determine its efficiency.

c. *Equipment Leaks.* We have information regarding equipment leak emission control programs for ten facilities. Four of these facilities are subject to the equipment leaks NSPS in 40 CFR part 60, subpart VV. Six facilities are subject to State equipment leak requirements. To define the five best performing facilities, we compared the State rules to subpart VV and concluded that subpart VV was either equivalent to, or more stringent than, the State rules. Therefore, the median facility was determined to be a facility subject to subpart VV. Thus, we determined that the MACT floor for new and existing equipment leaks is subpart VV.

We identified one alternative that is more stringent than the MACT floor for equipment leaks. The equipment leak provisions in the HON are more stringent than the subpart VV level of control. The level of control in subpart VV is equivalent to the Generic MACT control level 1, which is contained in 40 CFR part 63, subpart TT. The HON level of control is equivalent to the Generic MACT control level 2, which is contained in 40 CFR part 63, subpart UU.

The basic elements of both the level 1 and level 2 equipment leak programs are the same; however, level 2 requires connector monitoring and has a significantly lower leak definition. Due to the wide range of compliance options and performance-based incentives that reduce the monitoring frequencies, it is difficult to assess the incremental difference in costs between these two levels of control. In addition, due to the highly lethal nature of HCN, cyanide chemicals manufacturing process units are much more rigorously maintained than process units producing other, less lethal chemicals. Because of these factors, we do not believe that the additional emission reduction would justify the costs associated with requiring a cyanide manufacturing facility to comply with the HON program. Therefore, we concluded that it is not appropriate to require that existing and new sources comply with 40 CFR part 63, subpart UU.

However, we recognize that many cyanide chemicals manufacturing process units are collocated with HON facilities. In fact, HCN produced in a

Sohio HCN production process is actually a byproduct of a HON process. For the sake of consistency, some owners or operators of cyanide chemicals manufacturing process units may prefer to comply with the HON equipment leak program. Therefore, we are proposing the option of complying with either 40 CFR part 63, subpart TT or UU.

The form of the provisions for equipment leaks consists of work practice and equipment specifications. We have determined that it is not feasible to prescribe or enforce emission standards because emissions cannot be emitted through a conveyance device, and the application of a measurement methodology is not practicable due to technological or economic limitations (57 FR 62608).

We considered whether it is appropriate to require owners and operators to monitor all equipment components (i.e., connectors, flanges, valves). We concluded that there could be situations where the costs of monitoring equipment with very low HAP emission potential are not reasonable. Therefore, we are proposing an applicability cutoff for equipment components based on the amount of time the equipment contains or contacts HAP. We are proposing an applicability cutoff of 300 hours per year. We selected this cutoff based on what has been adopted under previously promulgated NESHAP for equipment containing or contacting organic HAP (i.e., the HON) because we had insufficient data on equipment leak emissions and control at cyanide manufacturing facilities.

We are proposing to exempt open ended lines that contain HCN or acrylonitrile from the requirements of 40 CFR part 63, subparts TT and UU. According to industry representatives, closing open ended lines that contain or contact HCN or acrylonitrile could potentially lead to trapped volumes of these chemicals, which could polymerize and raise significant safety concerns.

*d. Transfer Operations.* We have information for HCN transfer operations at three cyanide chemicals facilities. Two of these facilities control emissions from transfer operations using a flare. The third facility routes HCN emissions from transfer operations to a vent scrubber with a flare as a backup. The emission reduction for all three of these facilities with transfer operations is reported to be 98 weight-percent. Thus, we determined the MACT floor for new and existing transfer operations to be an emission reduction of 98 weight-percent

through the use of a flare or other device.

To select the proposed MACT for transfer operations, we did not identify any control technologies more stringent than the MACT floor that would be applicable. Although combustion technologies exist that could achieve an emission reduction higher than the MACT floor level of 98 weight-percent, we believe that the intermittent nature of transfer operation emissions make flares the most appropriate combustion control technology for this emission source type. Thus, we did not perform an above-the-floor analysis for transfer operations. Therefore, we are proposing that MACT for transfer operations for existing and new sources is the level of control represented by the MACT floor.

The proposed standards for transfer operations include a combination of forms. For transfer racks that are used to load HCN into tank trucks and rail cars that are controlled by control devices other than a flare, we are proposing an emission limitation in the form of a specified weight-percent requirement. This form was chosen based on controls used at cyanide chemicals manufacturing facilities and the data available for our MACT analysis. We selected this form to give owners and operators the flexibility to implement an applicable control technology to meet the MACT floor.

For transfer racks controlled by a flare, we selected a form consisting of equipment and operating specifications, consistent with the form for flare requirements that we have specified for other industries and emission points. This is because it is very difficult to measure the emissions from a flare to determine its efficiency.

*e. Wastewater Treatment Operations.* Wastewater is generated from the Andrussov and BMA cyanide manufacturing processes. We had information available on the wastewater handling practices for seven facilities in the Cyanide Chemicals Manufacturing source category. All seven of these facilities have wastewater treatment units in place at their facility necessary to meet either their National Pollutant Discharge Elimination System (NPDES) permit requirements if they are allowed to discharge directly to a body of navigable water, or to meet the requirements for discharging to a publicly owned treatment works facility if they have an indirect discharge permit. Therefore, the median of the top five facilities has a wastewater treatment system in place to meet permitted effluent discharge limits. These wastewater treatment systems are comprised of a series of tanks used for

settling, neutralization, clarification, and in some cases, biodegradation (most commonly found at facilities with NPDES permits). All of these wastewater treatment tanks are open to the atmosphere.

The wastewater generated from these cyanide chemicals manufacturing facilities tends to enter a collection system (typically a sewer) through drains, sumps, trenches, and hotwells in the process area. The collection system carries the wastewater from the process down to the wastewater treatment system. Our information on these cyanide manufacturing facilities does not indicate that there are controls in place to suppress HAP emission losses from the wastewater en route to the wastewater treatment plant. Therefore, the collection and drain system design is presumed to be typical of that found in other SOCOMI facilities, in which these HAP emissions vent to the atmosphere through conveyance points such as junction boxes, man holes, and lift stations. The tanks in the wastewater treatment plant are open to the atmosphere, where further HAP losses occur through a combination of evaporation and mechanical agitation. Six of these seven facilities report that they have a biological treatment tank or open pond.

We are aware that biological treatment units at SOCOMI facilities are capable of achieving HAP emissions reductions. However, the biological treatment units at these cyanide manufacturing facilities were installed to meet requirements associated with discharge of the effluent. These units were not designed for the purpose of reducing HAP emissions to the ambient air, and we believe that any associated reductions of air emissions are insignificant. For this component of the wastewater treatment system to achieve significant reductions in air emissions, the wastewater in the drain and conveyance systems, both within the process and going down to the wastewater treatment system, must be designed such that HAP emissions are suppressed so that they can reach the biological treatment system. In addition, the tanks in the wastewater system prior to the biotreatment tank must also employ suppression controls.

Site specific variability in performance of biotreatment tanks is significant. Although all of these facilities report a high level of removal of known HAP across their wastewater treatment systems, how much of the HAP that are actually destroyed, as opposed to stripped to the air, is unknown. The degree that HAP removal occurs through biological destruction is a function of many factors, including

the aeration rate, the biomass, the retention time in the tank, the biological degradation rate, and surface area. As noted in the promulgation preamble to the HON, “\* \* \* the variability in performance makes it difficult to quantify a required emission reduction for the purpose of setting a standard. Emission reductions for biological treatment systems can only be determined on a site-specific basis \* \* \*” (59 FR 19423). Moreover, given the site-specific nature of these systems, it would be difficult to develop even a qualitative work practice standard based on the median of the top five of these facilities that would both be achievable across the source category and consistent with continued compliance with effluent discharge permits. For these reasons, we have determined that the MACT floor for existing sources is no further control requirements for wastewater beyond current practices.

Two of the top five facilities report that they treat their process wastewater using stripping technology. One of these facilities sends their wastewater to a steam stripper, and the stripper effluent then goes to their wastewater treatment system. The other facility uses an air stripper and sends the stripper effluent to an ozonation step and then on to the wastewater treatment system. Both facilities control the vents on the strippers by 98 percent through thermal oxidation. The steam stripper is achieving 95 percent removal across the stripper. The air stripping system reports similar performance, although steam stripper performance is better understood in terms of its ability to remove HAP from wastewater and is generally considered a more widely applicable control technology for removing HAP from wastewater. Therefore, we have identified steam stripping achieving 95 percent HAP removal with 98 percent control of the stripper vent to be the MACT floor for new sources. We do not have any information that would aid us in setting an applicability cutoff for wastewater streams based on flow rate and HAP concentration. We do have information on the specifically-named wastewater streams being sent to the steam stripper. Therefore, the new source MACT floor also specifies the streams that must be controlled.

We are unaware of any technologies capable of performing at a higher control level than the steam stripping system representing the new source MACT floor. For this reason, we are not going beyond-the-floor to set MACT for new sources. We then considered whether this same stripping technology with control of the stripper vent is an

appropriate control technology beyond-the-floor for existing sources. Since these cyanide manufacturing processes are similar to other SOCOMI type processes previously regulated under other subparts, we evaluated what levels of wastewater flow and HAP concentration were considered necessary to yield a reasonable cost effectiveness beyond-the-floor. Our available information on cyanide manufacturing wastewater indicates that the flow rates and HAP concentrations fall well below applicability cutoffs established under these previously issued subparts. For that reason, we believe that the cost effectiveness of going beyond-the-floor for existing cyanide manufacturing sources is not reasonable.

We did not evaluate wastewater air emissions from sodium cyanide manufacturing wastewater. These process units typically have some type of water treatment that is part of the actual process unit. Vents from these treatment processes are considered to be part of the wet end production unit process vents and are regulated in the process vent portion of this proposed rule. We had no data indicating that the streams exiting these process units contain any HAP except for sodium cyanide, which is not volatile.

#### 4. How Did EPA Select the Compliance, Monitoring, Recordkeeping, and Reporting Requirements?

We selected the monitoring, recordkeeping, and reporting requirements of 40 CFR part 63, subparts YY, SS, TT, UU, and WW to demonstrate and document compliance with the cyanide chemicals manufacturing standards. The procedures and methods set out in these subparts are, where appropriate, based on procedures and methods that we previously developed for use in implementing standards for emission point sources similar to those being proposed for the Cyanide Chemicals Manufacturing source category.

General compliance, monitoring, recordkeeping, and reporting requirements that would apply across source categories and affected emission points are contained within 40 CFR part 63, subpart YY (§§ 63.1108 through 63.1113). We specify the applicability assessment procedures necessary to determine whether an emission point is required to apply control. These requirements are dependent on the emission point for which control applicability needs to be assessed and the form of the applicability cutoff selected for an individual source

category (e.g., HAP concentration cutoff level, above which, control is required).

We selected emission point and/or control device-specific monitoring (including continuous monitoring), recordkeeping, and reporting requirements included under common control requirement subparts promulgated for storage vessels (40 CFR part 63, subpart WW); equipment leaks (40 CFR part 63, subpart UU or TT); and closed vent systems, control devices, recovery devices and routing to a fuel gas system or a process (40 CFR part 63, subpart SS). These subparts contain a common set of monitoring, recordkeeping and reporting requirements. We established these subparts to ensure consistency of the air emission requirements applied to similar emission points with pollutant streams containing gaseous HAP. The rationale for the establishment of these subparts and requirements contained within each subpart is presented in the proposal preamble for the source category requirements previously promulgated under 40 CFR part 63, subpart YY (63 FR 55186–55191).

We believe that the compliance, monitoring, recordkeeping, and reporting requirements of subparts YY, SS, TT, and UU are appropriate for demonstrating and documenting compliance with the requirements proposed for the Cyanide Chemicals Manufacturing source category. This is because these requirements were established for standards with similar form and similar emission points with pollutant streams of gaseous HAP for which we are requiring MACT compliance demonstration and documentation under this proposal.

#### D. Summary of Environmental, Energy, Cost, and Economic Impacts?

##### 1. What Are the Air Quality Impacts?

Nationwide baseline HAP emissions from the Cyanide Chemicals Manufacturing source category are estimated to be 238 Mg/yr (263 TPY). These proposed NESHAP will reduce HAP emissions by approximately 106 Mg/yr (117 TPY). This is a 45 percent reduction from the baseline level for this source category and a 58 percent reduction for those facilities required to install controls to comply with the proposed NESHAP.

We also estimate that the proposed NESHAP for the Cyanide Chemicals Manufacturing source category will reduce emissions of volatile organic compounds (VOC) by 102 Mg/yr (113 TPY). We estimate that the proposed NESHAP will result in an increase in sulfur oxide (SO<sub>x</sub>) emissions of 7.3 Mg/

yr (8 TPY), an increase in nitrogen oxide (NO<sub>x</sub>) emissions of 10.3 Mg/yr (11.4 TPY), an increase in carbon monoxide (CO) emissions of 42.1 Mg/yr (46.4 TPY), and an increase in particulate matter (PM) emissions of 0.3 Mg/yr (0.3 TPY). The increases in emissions result from the on-site combustion of fossil fuels and emission streams as part of control device operations.

## 2. What Are the Cost and Economic Impacts?

The total estimated capital cost of the proposed NESHAP for the Cyanide Chemicals Manufacturing source category is \$939,000. The total estimated annual cost of the proposed NESHAP is \$2.4 million (fourth quarter 1998 dollars).

We prepared an economic impact analysis to evaluate the impacts the proposed NESHAP would have on the cyanide manufacturing market, consumers, and society. The total annualized social cost (in 1998 dollars) of the proposed NESHAP on the industry is \$2.4 million, which is much less than 0.001 percent of total baseline revenue for the affected sources. A screening analysis indicates that no individual firm affected by the proposed NESHAP would experience costs in excess of 0.001 percent of sales. For this reason, we believe that the impact of the proposed NESHAP will be minimal. No facility closures are expected as a result of the proposed NESHAP.

## 3. What Are the Nonair Health, Environmental, and Energy Impacts?

We believe that there would not be significant adverse nonair health, environmental, or energy impacts associated with the proposed NESHAP for the Cyanide Chemicals Manufacturing source category. This is supported by impacts analyses associated with the application of the control and recovery devices required under the proposed NESHAP. We determine impacts relative to the baseline that is set at the level of control in absence of the standards.

Control of equipment leaks will reduce the amount of HAP-containing material that could be discharged to a facility's wastewater treatment stream through equipment washdowns or from stormwater runoff. The use of a scrubber for HAP control from vents results in an effluent wastewater stream from the scrubber that would add a small amount of wastewater to that already being handled at the facility's wastewater treatment system.

There are minimal solid or hazardous waste impacts associated with the proposed NESHAP. A small amount of

solid waste may result from replacement of equipment such as seals, packing, rupture disks, and other equipment components, such as pumps and valves. A minimal amount of solid or hazardous waste could be generated from the use of steam strippers to control wastewater emissions. The possible sources include organic compounds recovered in the steam stripper overheads condenser or solids removed during feed pretreatment.

The energy demands associated with the control technologies for the proposed NESHAP include the need for additional electricity, natural gas, and fuel oil. The storage tank, transfer operations, equipment leak, and wastewater controls are not expected to require any additional energy. The total nationwide energy demands that would result from implementing the process vent controls are approximately  $3.1 \times 10^{14}$  Joules per year.

## III. Carbon Black Production

### A. Introduction

#### 1. What Are the Primary Sources of Emissions and What Are the Emissions?

We evaluated the following potential HAP emission sources at carbon black facilities: (1) Process vents, (2) equipment leaks, (3) storage vessels, and (4) wastewater. Based on available information, we have discerned that process vents from the main unit filter comprise most of the HAP emissions from carbon black facilities. Process vent emissions consist of tailgas from the reactors. The reactor tailgas is sent to a baghouse where the carbon black is separated from the tailgas. The main unit filter is where the carbon black is separated from the tailgas. After separation of the carbon black product, most of the tailgas is emitted to the atmosphere or sent to a combustion control device. The process vents after the main unit filter consist of vents from unit operations involved in the processing of the carbon black into final product. Hazardous air pollutant emissions may occur from process vents after the main unit filter, but the amount of HAP emitted from these vents is very small compared to the amount emitted from process vents from the main unit filter.

In our evaluation of equipment leaks, we found that leaks were not a significant source of HAP emissions for the Carbon Black Production source category. One of the reasons for this is the low vapor pressures of the raw materials used in the production process (*i.e.*, the typical carbon black feedstock is less than 0.05 kilopascals).

As with equipment leaks, our evaluation of the potential for HAP emissions from storage vessels indicated that they were not a significant source of emissions from carbon black production facilities. This is because the typical feedstock oil used in the carbon black production process is heavy fuel oil, which, because of its low vapor pressure, is not likely to be emitted to the atmosphere under normal operating conditions. In addition, the feedstock oil is nearly solid under standard pressure and temperature and typically needs to be heated to (and maintained at) 120 degrees Fahrenheit to allow it to flow as a liquid.

In our evaluation of wastewater, we did not identify any wastewater emissions of consequence as a result of the carbon black production process. The process uses a quench tower to capture the product, and the effluent guidelines applicable to this source category require that there be no discharge of process wastewater to navigable waters from carbon black production facilities.

We estimate 1996 baseline HAP emissions from the Carbon Black Production source category to be 7,000 Mg/yr (7,700 TPY). This estimate reflects emissions from process vents.

#### 2. What Are the Health Effects Associated With the HAP Emitted?

The principal HAP that we have identified as being associated with carbon black production facilities include carbon disulfide, carbonyl sulfide, and hydrogen cyanide. In the following paragraphs, we present a discussion on the effects of inhalation exposure to these compounds.

*Carbon disulfide.* Acute (short-term) inhalation exposure of humans to carbon disulfide has caused changes in breathing and chest pains. Acute human inhalation exposure to carbon disulfide has also been associated with nausea, vomiting, dizziness, fatigue, headache, mood changes, lethargy, blurred vision, delirium, and convulsions.

Chronic (long-term) carbon disulfide human exposure and inhalation studies indicate the potential for adverse neurologic effects. There is also a potential for reproductive effects in humans, such as decreased sperm count and menstrual disturbances, that have had chronic inhalation exposure to carbon disulfide. Developmental effects, including toxic effects to the embryo and malformations and functional and behavioral disturbances in offspring, have been observed in studies on laboratory animals with chronic inhalation exposure to carbon disulfide.

*Carbonyl sulfide.* Acute inhalation exposure to carbonyl sulfide in high concentrations may cause narcotic effects in humans and may irritate eyes and skin. No information is available on the chronic effects of carbonyl sulfide in humans.

*Cyanide compounds.* Acute inhalation exposure to high concentrations of cyanide compounds can be rapidly lethal. Acute inhalation of hydrogen cyanide at lower concentrations can cause a variety of adverse health effects in humans, such as weakness, headache, nausea, increased rate of respiration, and eye and skin irritation. Chronic inhalation exposure to cyanide compounds can result in effects on the central nervous system, such as headaches, dizziness, numbness, tremor, and loss of visual acuity. Other chronic inhalation exposure effects in humans include cardiovascular and respiratory effects, an enlarged thyroid gland, and irritation to the eyes and skin.

#### B. Summary of Proposed Standards for Carbon Black Production

##### 1. What Is the Source Category To Be Regulated?

We have defined the Carbon Black Production source category to include any facility that produces carbon black by the furnace black process, thermal black process, or the acetylene decomposition process. The furnace black process is a closed system thermal-oxidative decomposition process, the thermal black process is a cyclic thermal decomposition process, and the acetylene black process is a continuous thermal decomposition process. Carbon black is primarily used as a reinforcing agent for rubber. The largest use of carbon black is in the manufacture of automotive and truck tires.

##### 2. What Is the Affected Source?

We have defined the affected source to include each carbon black production process unit, along with associated process vents and equipment that are located at a major source, as defined in section 112(a) of the CAA. We define a carbon black production process unit as the equipment assembled and connected by hard-piping or duct work to process raw materials used to manufacture, store, and transport a carbon black product.

##### 3. What Are the Emission Limits, Operating Limits, and Other Standards?

For existing and new sources, we are proposing the same requirements for process vents. For process vents that are

associated with the main unit filter, we are proposing requirements to control HAP emissions by venting emissions through a closed vent system to a flare, or by venting emissions through a closed vent system to any combination of control devices that reduces emissions of HAP by 98 weight-percent. As an alternative to meeting a 98 percent by weight HAP emission limit, we are proposing that an owner or operator may comply with the NESHAP by reducing emissions of HAP from their process vents from continuous unit operations to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions).

##### 4. What Are the Testing and Initial and Continuous Compliance Requirements?

We are proposing testing and initial and continuous compliance requirements that are, where appropriate, based on procedures and methods that we have previously developed and used for emission points similar to those for which we are proposing standards with this action. For example, we are proposing applicability determination procedures to determine whether a process vent stream is required to apply control, and performance tests and test methods to demonstrate that the emission limits are achieved when controls are applied. The proposed requirements are dependent on the control device selected.

We are proposing control applicability determination procedures to measure process vent flow rate and process vent HAP concentration. The proposed test methods parallel what we have used for process vent organic HAP emission point sources in previous standards. For measuring vent stream flow rate, we propose the use of Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A. For measuring total vent stream HAP concentration to determine whether the vent stream HAP concentration is below a specified level, we propose the use of Method 18 of 40 CFR part 60, appendix A.

Additionally, we are proposing to require initial performance tests for all control devices other than flares and certain boilers and process heaters used as control devices for HAP emissions from process vents. As with the HON, we are not proposing a requirement to perform an initial performance test for boilers and process heaters larger than 44 MW (150 million Btu/hr) because they operate at high temperatures and residence times. Analysis shows that when vent streams are introduced into

the flame zone of these boilers and process heaters, greater than 98 weight-percent of organic HAP emissions are reduced, or an outlet concentration of 20 ppmv organic HAP is achieved. For flares, a percent reduction and outlet concentration measurement is not feasible. Therefore, we determined that a performance test is not necessary if the control device is a boiler, a process heater larger than 44 MW (150 million Btu/hr), or a flare. We proposed performance tests that ensure that a control device can achieve the required control level and help establish operating parameters that are indicative of proper operation and maintenance.

We are proposing that continuous compliance with emission standards for process vents be demonstrated by monitoring control device operating parameters established during the performance tests or specified in the standards (as applicable). The proposed requirements for carbon black production list the parameters that can be monitored for the common types of combustion devices. For other control devices, we would require that an owner or operator establish site-specific parameter ranges for monitoring purposes through the Notification of Compliance Status report and operating permit. Parameters selected are required to be good indicators of continuous control device performance.

In addition to testing and monitoring of emissions control equipment, we are also proposing that the closed vent system that routes emissions to control equipment be initially and annually tested for HAP emissions leaks (*i.e.*, a measurement greater than 500 ppmv. If a leak is detected, we would require that you eliminate the leak and monitor equipment (no later than 15 calendar days after the leak is detected).

##### 5. What Are the Notification, Recordkeeping, and Reporting Requirements?

We are proposing notification, recordkeeping, and reporting requirements that parallel the General Provisions (40 CFR part 63, subpart A), and requirements to document compliance that are similar to those previously developed and used for similar emission points.

We are proposing that owners or operators of carbon black production affected sources submit the following four types of reports: (1) Initial Notification, (2) Notification of Compliance Status, (3) periodic reports, and (4) other reports. Records of reported information and other information necessary to document compliance with the proposed NESHAP

would be required to be kept for 5 years. Equipment design records would be required to be kept for the life of the equipment.

For the Initial Notification, we are proposing that you list the carbon black production processes at your facility and the provisions that may apply. The Initial Notification would also be required to include a statement as to whether your facility can achieve compliance by the specified compliance date. This notification would be required to be submitted within 1 year after the date of promulgation for existing sources, and within 180 days before commencement of construction or reconstruction of an affected source.

For the Notification of Compliance Status report, we are proposing that you submit the information necessary to demonstrate that compliance has been achieved, such as the results of performance tests and design analyses. We provide information on the requirements and information to be provided to us for performance tests and other methods of compliance determination for process vents and equipment. For each test method used for a particular kind of emission point (e.g., process vent), one complete test report would be required to be submitted. This notification would also be required to include the specific range for each monitored parameter for each emission point for determining continuous compliance, and the rationale for why this range indicates proper operation of the control device.

For periodic reports, we are proposing that you report periods when the values of monitored parameters are outside the ranges established in the Notification of Compliance Status report. For process vents, records of continuously monitored parameters must be kept. For equipment leaks, inspections and/or leak detection monitoring records must be kept. These records would only be required to be submitted in the periodic report if a leak is detected. We are proposing that these reports be submitted semiannually, or quarterly if monitored parameter values for a particular emission point are outside the established range by a given percentage of the operating time.

Other reports that we are proposing to require include reports to the regulatory authority before or after a specific event (e.g., if a process change is made, requests for extension of repair period).

### *C. Rationale for Selecting the Proposed Standards for Carbon Black Production*

#### 1. How Did EPA Select the Source Category?

We listed Carbon Black Production as a category of major sources of HAP on June 4, 1996 (61 FR 28197). We listed this category due to potential emissions of carbon disulfide, carbonyl sulfide, and hydrogen cyanide. When we originally listed the Carbon Black Production source category, we stated that it included facilities that manufacture carbon black using the channel, thermal, or furnace process (61 FR 28197). In gathering and evaluating more extensive information on the production of carbon black, we determined that the furnace black process is the dominant production process utilized in this source category. The other types of production processes we identified that are currently used in the United States to produce carbon black are the thermal, acetylene, and lampblack processes. Therefore, in our proposed definition of carbon black production, we specify the furnace black, thermal, acetylene, and lampblack processes.

The CAA allows us to define subcategories, or subsets of similar emission sources within a source category, if technical differences in emissions characteristics, processes, control device applicability, or opportunities for pollution prevention exist within the source category (57 FR 31576). Specific examples of these differences include the types of products, process equipment differences, the type and level of emission control, emissions sources, and any other factors that would impact a MACT standard. We did not identify differences between the four carbon black production processes included in the source category that we believe meet the criteria presented above for subcategorization. They all have the same basic unit operations, HAP emission sources, and ability to control the HAP emissions. Thus, we determined that it was not necessary to divide this source category into subcategories.

#### 2. How Did EPA Select the Affected Source?

The affected source is the group of unit operations, equipment, and emission points that are subject to the proposed NESHAP. We can define the affected source as narrowly as a single item of equipment or as broadly as all equipment at the plant site that is used to manufacture the carbon black product. The affected source defines the

collection of equipment that you would evaluate to determine whether replacement of components at an existing affected source would qualify as a reconstruction. If we define the affected source narrowly, it could affect whether some parts of a process unit would be subject to new source requirements or existing source requirements. We are proposing the same requirements for existing and new sources for carbon black production emission points. Therefore, the only implication for narrowly defining the carbon black production affected source would be when the source would have to comply with the standards.

We selected the process unit that manufactures carbon black as the foundation for the affected source. We defined the carbon black production process unit as the collection of equipment, assembled and connected by hard-piping or duct work, that is used to process raw material to manufacture the carbon black product. We evaluated the potential HAP emission sources at carbon black production facilities and determined that most HAP emissions occur from a single point. This point is the process vent from the main unit filter, which includes the "tailgas" from the reactor, along with miscellaneous streams from other unit operations.

Based on the available information, we concluded that HAP emissions from storage vessels, equipment leaks, and wastewater were not significant. In fact, no HAP emissions or HAP emission controls were reported by industry for storage vessels and wastewater at any carbon black facility. Therefore, we have not included storage vessels and wastewater streams as part of the affected source.

In summary, we are proposing that the affected source for carbon black production include each carbon production process unit located at a major source, including all process vents from the main unit filter, and equipment (i.e., connectors, pumps, valves) after the reactor that contains or contacts HAP that are associated with the carbon black production process unit.

#### 3. How Did EPA Determine the Basis and Level of The Proposed NESHAP for Existing and New Sources?

Eight companies operate 22 carbon black production facilities in the United States. For a source category with under 30 sources, section 112(d)(3) of the CAA directs that the MACT floor for existing sources be based on the average emission limitation achieved by the best performing five sources. The MACT floor for new sources in a source



category is required to reflect the level of control being achieved by the best controlled similar source. The term "average" is not defined in the CAA. On June 6, 1994 (59 FR 29196), we announced our conclusion that Congress intended "average," as used in section 112(d)(3), to be the mean, median, mode, or some other measure of central tendency. We also concluded that we retain substantial discretion within the statutory framework to set MACT floors at appropriate levels, and that we construe the word "average" (as used in section 112(d)(3)) to authorize us to use any reasonable method, in a particular factual context, of determining the central tendency of a data set.

We chose the median as the measure of central tendency in our MACT floor analysis for process vents and equipment after the reactor for existing sources. We chose the median because the arithmetic mean resulted in a level of control that did not correspond to any actual control technology. Using a median allowed us to select a MACT floor level of control that corresponds to the level of control represented by an existing control device. Additionally, since our MACT floor analysis consisted of data from only 22 facilities, choosing the mode as the measure of central tendency did not make sense, since the mode is more appropriately used when there is a large data set.

One decision that we must make is how to "group" emission sources in the MACT floor analysis. We often separate emission sources into groups by emission source type (*e.g.*, tanks, process vents, fugitive emission sources). For the Carbon Black Production source category, we identified the process vent from the main unit filter as a group for purposes of determining MACT.

For process vents from the main unit filter, we determined the MACT floor for existing sources to be a 98-weight-percent HAP emission reduction. This floor level of control represents the five best performing facilities that achieved the highest level of emissions reductions and had the lowest reported uncontrolled (inlet) total HAP concentrations (considering vent flow rate) for the main unit filter process vent. Since all combustion devices in our database achieve a 98-weight-percent HAP emission reduction, we based the best controlled facilities on those facilities that control the lowest inlet concentration streams (considering vent flow rate). We believe, based on engineering judgement, that these low uncontrolled (inlet) total HAP concentrations represent the most

difficult main unit filter process vent emission streams to control in the Carbon Black Production source category.

For process vents from the main unit filter, we were unable to identify a method of control in practice that would achieve a greater level of HAP emissions control than the MACT floor levels for existing sources. Therefore, we determined that the MACT floor for new sources for process vents from the main unit filter is the same as the MACT floor for existing sources (*i.e.*, a 98-weight-percent HAP emission reduction).

For process vents from the main unit filter, we estimated and evaluated the impacts of above-the-floor options for existing and new sources. We did not identify a viable above-the-floor option for process vents from the main unit filter for existing or new sources. Therefore, we are proposing that MACT for process vents from the main unit filter for existing and new sources is the level of control represented by the MACT floor (*i.e.*, a 98-percent HAP emission reduction).

In our evaluation of control options for carbon black facilities for process vents after the main unit filter, we determined that the MACT floor for existing and new sources is no control. This floor level of control represents the five best performing facilities that achieved the highest level of emissions reductions and had the lowest reported uncontrolled (inlet) total HAP concentrations (considering vent flow rate) for process vents after the main unit filter. Four of the five facilities did not indicate any air emissions control after the main unit filter. One facility reported process modifications that reduce the residual HAP levels in the process after the main unit filter by 98 weight-percent. Since this facility's level of control does not correspond to a control type, we determined that the MACT floor for both existing and new sources was no control.

We estimated and evaluated the impacts of above-the-floor options for process vents after the main unit filter. We evaluated controlling process vents after the main unit filter to 98 weight-percent as an above-the-floor option. We determined that the cost effectiveness of this option is unreasonable. Therefore, we selected the MACT floor level of control for process vents located after the main unit filter process to be MACT (*i.e.*, no control).

In determining MACT for process vents, we considered whether it was appropriate to apply a 98 weight-percent emission reduction requirement to all process vents from main unit filters. We determined that for low-

concentration streams (*i.e.*, streams with concentrations less than around 1,000 ppmv), a 98 weight-percent reduction may not be achievable for all process vents from the main unit filter.

Therefore, we are proposing an alternative to the 98 weight-percent reduction requirement for main unit filter process vents at existing and new affected sources. This alternative standard is a HAP or total organic compound (TOC) concentration limit of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions), which we have determined is a reasonable level achievable for low-concentration streams.

In determining MACT for process vents from the main unit filter, we also selected a control applicability cutoff for existing and new sources, below which the vent would not be subject to control requirements. We selected an applicability cutoff for existing and new sources that represents the lowest inlet concentration reported at one of the best controlled facilities. The proposed cutoff is 260 ppmv.

The standards that we are proposing for process vents from the main unit filter in the carbon black production source category have various forms. These forms consist of a combination of emission standards and equipment, design, work practice, and operational requirements consistent with requirements promulgated for similar emission points and emission characteristics. For process vent streams controlled by control devices other than a flare, we selected the form of a numerical emission limitation (a weight-percent reduction and a concentration). This form was chosen based on the controls used at carbon black facilities and the data available for our MACT analysis.

For vent streams controlled by a flare, we selected a form consisting of equipment and operating specifications, consistent with the form for flare requirements that we have specified for other industries. This is because it is very difficult to measure the emissions from a flare to determine its efficiency.

#### 4. How Did EPA Select the Compliance, Monitoring, Recordkeeping, and Reporting Requirements?

We selected the monitoring, recordkeeping, and reporting requirements of 40 CFR part 63, subparts SS, UU, and YY to demonstrate and document compliance with the carbon black production standards. The procedures and methods set out in these subparts are, where appropriate, based

on procedures and methods that we previously developed for use in implementing standards for emission point sources similar to those being proposed for the Carbon Black Production source category.

General compliance, monitoring, recordkeeping, and reporting requirements that would apply across source categories and affected emission points are contained within 40 CFR part 63, subpart YY (*i.e.*, §§ 63.1108 through 63.1113). We specify the applicability assessment procedures necessary to determine whether an emission point is required to apply controls. These procedures are dependent on the emission point for which control applicability needs to be assessed and the form of the applicability cutoff selected for an individual source category (*e.g.*, a HAP concentration cutoff level, above which control is required).

We selected monitoring (including continuous monitoring), recordkeeping, and reporting requirements included under common control requirement subparts promulgated for equipment leaks (40 CFR part 63, subpart UU), and closed vent systems, control devices, recovery devices and routing to a fuel gas system or a process (40 CFR part 63, subpart SS). These subparts contain a common set of monitoring, recordkeeping and reporting requirements. We established these subparts to ensure consistency of the air emission requirements applied to similar emission points with pollutant streams containing gaseous organic HAP. The rationale for the establishment of these subparts and requirements contained within each subpart is presented in the proposal preamble for the source category requirements previously promulgated under 40 CFR part 63, subpart YY (63 FR 55186–55191).

The compliance, monitoring, recordkeeping, and reporting requirements of 40 CFR part 63, subparts SS, UU, and YY, are appropriate for demonstrating and documenting compliance with the requirements proposed for the Carbon Black Production source category. This is because these requirements were established for standards with similar forms and similar emission points, and with pollutant streams of gaseous organic HAP for which we are requiring MACT compliance demonstration and documentation under this proposal.

#### *D. Summary of Environmental, Energy, Cost, and Economic Impacts*

##### 1. What Are the Air Quality Impacts?

For the Carbon Black Production source category, we estimate that the proposed NESHAP would reduce HAP emissions by 1830 Mg/yr (2,020 TPY). This is a 26 percent reduction from the total baseline HAP emissions for this source category and a 95 percent reduction for those facilities that would be required to install controls to meet the standards.

We estimate that the proposed NESHAP for the Carbon Black Production source category would reduce CO emissions by 474,000 Mg/yr (522,000 TPY), VOC by 16,900 Mg/yr (18,600 TPY), hydrogen sulfide (H<sub>2</sub>S) by 10,300 Mg/yr (11,300 TPY), and PM by 740 Mg/yr (820 TPY). We estimate that the proposed NESHAP would increase SO<sub>x</sub> emissions by 32,900 Mg/yr (36,200 TPY) and NO<sub>x</sub> by 1,140 Mg/yr (1,260 TPY) as a result of on-site combustion of fossil fuels. However, the air quality benefits of the proposed NESHAP (*i.e.*, reductions in HAP, CO, VOC, and H<sub>2</sub>S emissions) outweigh the negative impacts associated with the anticipated increases in emissions of SO<sub>x</sub> and NO<sub>x</sub>.

##### 2. What Are the Cost and Economic Impacts?

The total estimated capital cost of the proposed NESHAP for the Carbon Black Production source category is \$54.9 million. The total estimated annual cost of the proposed NESHAP is \$10.6 million. These costs represent fourth quarter 1998 dollars.

We prepared an economic impact analysis to evaluate the impacts these proposed NESHAP would have on the carbon black production market, consumers, and society. The total annualized social cost (in 1997 dollars) of the proposed NESHAP to the industry is \$10.6 million, which is less than 0.001 percent of total baseline revenue for the affected sources. A screening analysis suggests only one of the firms affected by the proposed NESHAP would experience costs in excess of 1 percent of sales, and no firm would experience costs in excess of 1.5 percent of sales. For this reason, we believe the impact of the proposed NESHAP will be minimal. We expect no facility closures as a result of the proposed NESHAP.

##### 3. What Are the Nonair Health, Environmental, and Energy Impacts?

We believe that there would not be significant adverse nonair health, environmental or energy impacts associated with the proposed NESHAP for the Carbon Black Production source

category. This is supported by impacts analyses associated with the application of the control and recovery devices required under the proposed NESHAP. We determine impacts relative to the baseline that is set at the level of control in absence of the proposed NESHAP.

There are no water pollution and solid waste impacts from the use of air emission control devices in the Carbon Black Production source category. An increase in energy consumption will result from the use of combustion control systems. We estimate that the Carbon Black Production source category will consume an additional 186 million cubic feet of natural gas per year to meet the regulatory requirements of the proposed NESHAP. This would represent an increase in total domestic natural gas consumption of less than 1/100th of one percent.

#### *E. Solicitation of Comments*

Representatives of the carbon black industry have expressed concern with requirements in the proposed NESHAP to monitor for leaks from air stream conveyance systems. Under 40 CFR part 63, subpart SS, we are requiring facility owners/operators to monitor for HAP leaks from connectors and other equipment involved in the conveyance of HAP containing air emission streams required to be controlled by the proposed NESHAP.

Industry concern so far has centered around two issues: (1) That the large amount of nitrogen in carbon black facility air streams may provide false positive readings; and (2) that EPA Method 21 (the required test method) may not detect the nonorganic HAP present in the gas stream for a carbon black facility and, therefore, may not be an effective monitoring procedure. We are soliciting further industry comments and data on these two issues in order to more effectively address them in the final NESHAP.

Many carbon black production facilities use flares to control HAP emissions. The flares used by the industry are commonly called hydrogen flares due to the presence of large amounts of hydrogen in emission streams being controlled. On May 4, 1998, we published a direct final rule (63 FR 24436) to add operating requirements designed to ensure that a 98 weight-percent destruction of organic HAP and VOC is achieved by hydrogen flares. We are aware that some members of the carbon black industry use flare designs that differ from the flare type used to establish our current requirements for hydrogen flares. While some industry flares may not meet our current operating procedures, they

might meet the required 98 weight-percent level required by the proposed NESHAP.

We are soliciting test data collected by industry that would show that flare types used by the carbon black industry achieve 98 weight-percent control. If we determine the data submitted to be adequate, a revision to the hydrogen flare requirements could be promulgated. This revision potentially would allow the use of certain flares meeting the required destruction efficiency, yet operating outside of the parameters we established in the May 4, 1998, **Federal Register** notice to be used to meet the requirements of the proposed NESHAP.

#### IV. Ethylene Production

##### A. Introduction

###### 1. What Are the Primary Sources of Emissions and What Are the Emissions?

The following emission types (*i.e.*, emission points) are the primary sources of emissions being covered by the proposed NESHAP: Equipment (including pumps, compressors, pressure relief devices, valves, and connectors); storage vessels; transfer racks; process vents; heat exchange systems; and waste operations. We address pyrolysis furnaces and decoking operations, but there are no specific control requirements for these two emission types.

A variety of HAP are emitted during the ethylene manufacturing process. The HAP emitted by the facilities covered by the proposed NESHAP include benzene, 1,3 butadiene, toluene, naphthalene, hexane, and xylene. The proposed standards regulate emissions of these compounds, as well as other incidental organic HAP that are emitted during the manufacture of ethylene.

###### 2. What Are the Health Effects Associated With the HAP Emitted?

The data available to us indicate that the primary HAP emitted by ethylene manufacturing are benzene and 1,3 butadiene. Emissions of benzene and 1,3 butadiene are more than 80 percent of the total HAP emissions from the manufacture of ethylene/propylene. The HAP that would be controlled with today's proposed NESHAP are associated with a variety of adverse health effects.

**Benzene.** Acute (short-term) exposure to benzene in air can cause dizziness, headaches, and unconsciousness. Exposure to high levels of benzene can result in death. Lower concentrations may irritate the skin, eyes, and lungs. Chronic (long-term) exposure to benzene in occupational settings has

caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in workers exposed to benzene. The EPA has classified benzene as a Group A, known human carcinogen.

**1,3 butadiene.** Acute inhalation of 1,3 butadiene results in irritation of the eyes, nasal passages, throat, and lungs, and causes neurological effects such as blurred vision, fatigue, headache, and vertigo. Epidemiological studies have reported a possible association between chronic 1,3 butadiene exposure and cardiovascular diseases. Animal studies have reported the development of tumors following inhalation exposure to 1,3 butadiene. The EPA has classified 1,3 butadiene as a Group B2, probable human carcinogen.

The effects of these HAP vary in severity based on the level and length of exposure and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect human variability such as genetics, age, health status (*e.g.*, presence of pre-existing disease), and lifestyle. To the extent the adverse effects do occur, the proposed NESHAP will substantially reduce emissions and exposures to the level achievable with MACT. The seriousness of risks remaining after impositions of the final MACT standards will be examined at a later date, as provided for under section 112(f) of the CAA.

##### B. Summary of Proposed Standards for Ethylene Production

###### 1. What Is the Source Category To Be Regulated?

There are 37 ethylene production plants operating in the United States. We estimate that 30 or more facilities are major sources. The proposed NESHAP apply to all major sources that produce ethylene. Final determination of major source status occurs as part of the compliance determination process undertaken by each individual source. Area sources are not subject to the proposed NESHAP.

The Ethylene Production source category includes any facility which manufactures ethylene as a primary product or an intermediate product. Ethylene is produced by either a pyrolysis process (hydrocarbons subjected to high temperatures in the presence of steam) or by separation from a petroleum refining stream. The ethylene production process includes

the separation of ethylene from associated streams such as product made from compounds composed of four carbon atoms (C4), pyrolysis gasoline, and pyrolysis fuel oil. The ethylene production process does not include the manufacture of synthetic organic chemicals, such as the production of butadiene from the C4 stream and aromatics from pyrolysis gasoline. Propylene is often produced as a product during the ethylene production process, but the separation of propylene from a refinery gas stream does not in itself cause the process unit or the equipment used for the separation to be included in this source category.

In addition to ethylene and propylene, other products from an ethylene manufacturing process unit (EMPU) may include, but are not limited to: (1) Hydrogen and methane containing streams, (2) ethane and propane streams, (3) mixed C4+ pyrolysis products, (4) pyrolysis fuel oil, and (5) specialty products such as acetylene and methylacetylene-propadiene. For purposes of discussion in this preamble, the term ethylene will be used to describe the source category and the associated process unit equipment even though other products, such as propylene, may be produced in addition to and in greater or lesser quantities than ethylene.

###### 2. What Is the Affected Source?

We have defined the affected source to include each EMPU, along with associated process equipment (including storage vessels, process vents, transfer racks, waste streams, piping, and heat exchange systems) located at a plant site that is a major source as defined in section 112(a) of the CAA. The affected source does not include associated equipment that does not contain HAP, stormwater from segregated sewers, water from firefighting and deluge systems in segregated sewers, water from testing deluge systems, water from safety showers, spills, storage vessels and transfer racks that contain organic HAP as impurities, or vapor balancing transfer equipment. We define EMPU as a process unit specifically utilized for the production of ethylene/propylene including all separation and purification processes. The affected source does not include pieces of equipment currently included in other source categories.

###### 3. What Are the Emission Limits, Operating Limits, and Other Standards?

The following discussion briefly summarizes the proposed control requirements for the affected emission types.

a. *Equipment leaks.* The equipment leak emission type represents emissions from specific components within the ethylene manufacturing process. These components include pumps, compressors, pressure relief devices, gas valves, light liquid valves, heavy liquid valves, and connectors. For equipment containing or contacting HAP in amounts of 5 percent or greater, HAP emissions are required to be controlled through the implementation of LDAR program for affected equipment. Monitoring frequency is based on the percent of leaking equipment. Requirements are the same for both existing and new sources.

b. *Process vents.* For process vents from continuous unit operations having an average flow rate greater than or equal to 0.008 standard cubic meters per minute (scmm) and an average HAP concentration of 30 ppmv or greater, HAP emissions are required to be controlled by routing emissions through a closed vent system to one of the following: (1) A flare, or (2) an enclosed combustion device that reduces HAP emissions by 98 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions). Recovery devices can be used in certain situations to meet the 98 weight-percent reduction or 20 ppmv requirement. Requirements are the same for both existing and new sources.

c. *Storage Vessels.* For storage vessels storing liquid containing HAP and having a vapor pressure greater than or equal to 3.4 kilopascals (0.5 pounds per square inch absolute (psia)) but less than 76.6 kilopascals (11.1 psia), requirements are based on capacity. For storage vessels with capacity greater than 4 cubic meters (1,000 gallons) but less than 95 cubic meters (25,000 gallons), HAP emissions are required to be controlled by filling the vessel through a submerged pipe or by complying with the requirements for storage vessels with capacities greater than or equal to 95 cubic meters (25,000 gallons). For storage vessels with capacity of 95 cubic meters (25,000 gallons) or more, HAP emissions are required to be controlled by equipping the vessel with an internal floating roof or external floating roof with seals and controlled fittings or by routing emissions through a closed vent system to a flare, a fuel gas system or process, or a control device that reduces HAP emissions by 95 weight-percent. Vessels storing materials with vapor pressures of 11 psia or greater must be equipped with a closed vent system routed to a flare or control device that reduces HAP

emissions by 95 weight-percent. Requirements are the same for both existing and new sources.

d. *Transfer Racks.* For transfer racks loading 76 cubic meters (20,000 gallons) or more per day of HAP-containing material (averaged over any consecutive 30-day period) and having a vapor pressure greater than or equal to 3.4 kilopascals (0.5 psia), HAP emissions are required to be controlled by equipping the transfer rack with one of the following: (1) A closed vent system designed to collect the regulated material displaced during loading and route it to a flare or other control device that reduces HAP emissions by 98 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions), or (2) process piping designed to collect the regulated material displaced during loading and route it to a process, a fuel gas system, or a vapor balance system. Requirements are the same for both existing and new sources.

e. *Heat Exchange Systems.* The HAP emissions from heat exchange systems occur when a leak in a heat exchanger allows HAP to be introduced to the cooling water and released when the cooling water is exposed to the atmosphere. The HAP emissions are required to be controlled by implementing procedures to monitor cooling water and repair equipment upon detection of a leak. Cooling water is monitored monthly for heat exchange systems at existing sources and weekly for heat exchange systems at new sources.

f. *Waste Operations.* To control emissions from waste streams, HAP in the stream must be reduced by 99 weight-percent or to 10 ppmv. The HAP reduction of 99 weight-percent must be achieved using suppression followed by steam stripping, biotreatment, or other treatment processes. Vents from steam strippers and other waste management or treatment units are required to be controlled by a control device achieving 98 weight-percent emission reduction or 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions) at the outlet of the control device. The term "waste" includes wastewater streams. This term is used because the proposed 40 CFR part 63, subpart XX, references the Benzene Waste Operations NESHAP (BWON) for controlling emissions from wastes (including wastewater). Requirements are the same for both existing and new sources.

As discussed later in this preamble, the requirements for waste operations are based on the BWON. The BWON includes three compliance options in addition to the standard requirements. These compliance options are not included in the requirements for ethylene production sources. The BWON compliance options set limits based on a total annual benzene (TAB) quantity. Because the requirements for ethylene production sources are for controlling HAP emissions, requirements including a TAB quantity would not be appropriate. We do not have adequate data to convert the TAB limits into HAP emission limits. Additionally, calculation of such a quantity is a complicated and time-consuming process. In complying with the BWON, a TAB quantity is calculated regardless of the compliance option selected because a TAB quantity is used to determine overall applicability of the BWON. No such quantity is needed for the ethylene production waste requirements because they apply to all ethylene production sources located at major sources. Excluding the compliance options simplifies the requirements for ethylene production sources by not requiring a TAB or a HAP-based quantity to be calculated.

#### 4. What Are the Testing, Monitoring, Inspection, Recordkeeping and Reporting Requirements?

The testing, monitoring, inspection, recordkeeping, and reporting requirements specified in the proposed NESHAP are used to assure and document compliance with the standards. The testing, monitoring, inspection, recordkeeping, and reporting requirements included in the proposed NESHAP are based on such requirements that we previously developed for sources similar to those for which standards are being proposed today. The testing, monitoring, inspection, recordkeeping, and reporting requirements for each emission type are based on those in the Petroleum Refineries NESHAP, the BWON, the HON, and/or other rules as appropriate. These testing, monitoring, inspection, recordkeeping, and reporting requirements are the same as the generic standards for storage vessels (40 CFR part 63, subpart WW); equipment leaks (40 CFR part 63, subparts TT and UU); and process vents (40 CFR part 63, subpart SS).

As discussed later in this preamble, the proposed 40 CFR part 63, subpart XX, specifies that monitoring of HAP concentration in waste streams after treatment or process parameters that indicate proper operation of treatment

systems must be conducted continuously. Facilities that currently perform concentration monitoring of waste streams do so on a monthly basis as required by the BWON. We do not believe that monthly concentration monitoring is sufficient to ensure continuous compliance. Rules developed under section 112 of the CAA include monitoring strategies that incorporate the concepts of enhanced monitoring that were established in section 114(a)(3) of the CAA. This approach is designed to ensure that monitoring procedures developed for section 112 standards provide data that can be used to determine compliance with applicable standards, including emission standards on a continual basis. Since the waste requirements of the proposed 40 CFR part 63, subpart XX, primarily refer to provisions in 40 CFR part 61, subpart FF, that were developed prior to the CAA Amendments, the provisions do not ensure that monitoring data are available to prove compliance on a continual basis in all cases. Therefore, today's proposal requires either continuous monitoring of HAP concentration of the waste stream exiting the treatment process or continuous monitoring of process parameters for the waste treatment process/unit that would indicate proper system operation. Facilities that comply with the monitoring requirements of the proposed 40 CFR part 63, subpart XX, are not required to comply with the monitoring requirements of the BWON.

#### 5. What Are the Startup, Shutdown, and Malfunction Requirements?

The startup, shutdown, and malfunction requirements included in the proposed NESHAP are, where appropriate, based on startup, shutdown, and malfunction requirements developed for the part 63 General Provisions and previously incorporated in 40 CFR part 63, subpart YY. Subpart YY requires that minimization of emissions from startup, shutdown, and malfunctions be addressed in a startup, shutdown, and malfunction plan. The plan must also establish reporting and recordkeeping of such events. The existing startup, shutdown, and malfunction requirements have been reviewed and were determined to be appropriate for ethylene production sources.

Also, during development of the proposed NESHAP, we determined that decoking is a shutdown activity and will be addressed through a facility's startup, shutdown, and malfunction plan. The decoking process is similar to other shutdown activities as defined in subpart YY. Including decoking in a

facility's startup, shutdown, and malfunction plan will require owners and operators of an EMPU to include procedures for decoking that will minimize emissions. By including decoking as a shutdown activity, owners and operators will be afforded flexibility in addressing decoking emissions while ensuring that they will be minimized.

#### 6. How Are the Proposed NESHAP Related to Other Rules?

We recognize that the potential exists for regulatory overlap between the proposed NESHAP and other rules previously developed under the CAA. Therefore, we have clarified the applicability of 40 CFR part 63, subpart YY, as it relates to other 40 CFR parts 60, 61, and 63 rules that apply to ethylene production sources in the general applicability section of the proposed NESHAP (§ 63.1100). Areas of overlap may occur with other NESHAP applicable to storage vessels, process vents, transfer operations, and equipment leaks, such as 40 CFR part 60, subparts Ka, Kb, VV, NNN, and RRR; 40 CFR part 61, subpart V; and 40 CFR part 63, subpart G.

The requirements for equipment leaks, storage vessels, process vents, and transfer racks are similar to the requirements for these emission types under both the HON and the Petroleum Refineries NESHAP. Thus, we expect that most ethylene manufacturing facilities are currently implementing many of the proposed requirements for a process unit at the plant site, which will lessen the burden to owners and operators. In addition, the proposed monitoring, recordkeeping, reporting, and testing requirements are also similar to those required by the HON and the Petroleum Refineries NESHAP.

Further, the proposed NESHAP reference several other subparts which have established requirements for equipment leaks, storage vessels, process vents, and waste operations. We made the decision to reference other subparts in order to expedite the rulemaking process and to encourage standardization of requirements for facilities subject to numerous NESHAP. It is not our intent to broadly apply standards that have been promulgated previously by the Agency without thorough consideration of the appropriateness of such an approach. We determined the appropriate standards for each emission type at ethylene manufacturing facilities prior to making the decision to reference other subparts for emission control standards.

#### C. Rationale for Selecting the Proposed Standards for Ethylene Production

##### 1. How Did EPA Select the Source Category?

In the early listing of source categories, we intended to regulate ethylene processes with the SOCM. We did not do this because we had insufficient data to support that ethylene processes and SOCM processes were similar sources for MACT determination. The ethylene processes were, therefore, specifically not covered by NESHAP for the SOCM source category (HON). Consequently, we listed ethylene processes as a separate category of major sources of HAP on June 4, 1996 (61 FR 28197).

##### 2. How Did EPA Select the Affected Source?

We determined the affected source by first recognizing that ethylene manufacturing processes generally exist as a follow-on chemical process to petroleum refining and as a precursor to the production of other chemicals, most of them SOCM chemicals. Concerned about overlap, we considered the combination of equipment used in the manufacture of ethylene, and the associated by-products and co-products, as the subject of this proposal, from the point at which feed stocks from refinery processes are received by an EMPU to the point where chemical product streams are either received by a unit covered by another MACT standard, like the HON, or leave the manufacturing site as product or waste. Not all streams in the affected source contain HAP, and the primary products of the EMPU are typically ethylene and propylene, neither of which are HAP. Hence, not all streams required control, only those containing HAP. To simplify the process of determining where to apply controls, the following emission types (*i.e.*, emission points) were identified as the sources of emissions within the EMPU: Equipment (including pumps, compressors, pressure relief devices, valves, and connectors); storage vessels; transfer racks; process vents; heat exchange systems; and waste operations. We also identified pyrolysis furnaces and decoking operations, but there are no specific control requirements for these two emission types.

##### 3. How Did EPA Determine the Basis and Level of the Proposed NESHAP for Existing and New Sources?

We are aware of 36 existing facilities in this source category, 31 of which are located in just two States, Texas and Louisiana. Although we surveyed only

11 of the facilities in Texas and Louisiana, the MACT levels of control were relatively predictable and largely driven by existing State programs.

For this source category, the selection of the best performing facilities upon which to determine the MACT floor used a point value approach, whereby the floor decisions were driven by the facilities that have the best LDAR program for equipment leaks. The information we collected indicates that equipment leaks are the largest source of HAP emissions at ethylene affected sources.

To determine the existing MACT floor using the point value approach, it was necessary to determine the emission limitations achieved by the best performing 12 percent of sources (*i.e.*, five facilities) in the ethylene manufacturing industry. The five best performing facilities were determined on a facilitywide basis. For each emission type (equipment leaks, storage vessels, waste operations, heat exchange systems, process vents, and transfer racks), information on the control devices and emission reduction techniques in place at each facility was used to identify the most controlled sources. A "point system" was used to rank the facilities in order of most to least controlled. Facilities received points for each emission type for which they were among the best controlled. The points received for an emission type were weighted based on the relative contribution to total emissions to reflect the impact that control of the emission type has on the total emissions from a facility. All points for a facility were totaled. The facilities with the five highest point totals are considered to be the best performing overall sources.

After we identified the top five performing sources, we used the information on the emission reduction techniques and control devices in place at those facilities to determine the "average" emission limitation achieved for each emission type. For each emission type, the five best performing facilities were ranked, in order of emission limitation achieved. The MACT floor for existing sources is the emission limitation achieved by the median facility. For EMPU emission types, determining the median reduction achieved, rather than the arithmetic mean, was found to be the most appropriate approach, since the median is associated with specific control technologies. The MACT floor for new sources is the emission limitation achieved by the best performing facility.

Although the five best performing facilities were determined on a

facilitywide basis, it is important to note that this analysis does not result in a facilitywide level of emission reduction that is being achieved by the best performing sources. Adequate information, specifically data on emissions before control techniques are applied, is not available to estimate facilitywide emissions reductions. It is unlikely that an accurate measure of the emission limitations achieved could be made. It is even less likely that such a limit could be used as the basis for a rule. Typically, MACT rules refer to a control device or practice as the basis of the standards because the MACT floor and MACT must be technically achievable. This would not be possible if an estimated facilitywide emission reduction was used as the basis for the standards. Additional information on selection of the five best performing facilities and documentation on the MACT floor methodology and determination of MACT is included in Docket No. A-98-22.

As a check against whether we had properly identified the appropriate MACT floor level of control for the other HAP emission source types (*i.e.*, storage vessels, process vents, wastewaters, cooling water, and furnaces), we then independently evaluated the best level of performance for each emission type. In other words, we performed a cursory analysis using the "plank-type" approach in determining the floor for these other emission types, as described in the preamble of the HON (59 FR 19402, April 22, 1994). We did not need to reevaluate equipment leak best performers since our point value approach already emphasized best performing LDAR programs.

To further verify that we had made the right floor selections, we visited the Texas Natural Resources Conservation Commission to review the permits for the facilities in Texas and were able to confirm that the Texas facilities among the 11 surveyed are the best performing facilities in Texas. We also found that the levels of controls for all of these emission source types were a function of compliance with either Texas or Louisiana permit conditions, NSPS for Air Oxidation and/or SOCOMI Distillation (40 CFR part 60, subparts III and NNN), or the Benzene Waste NESHAP (40 CFR part 61, subpart FF). Since the best performing sources within each emission source type that we identified through the point value approach were the sources complying with the most stringent applicable State or Federal requirements, we concluded that we would arrive at the same MACT floor level of control for each emission source type through either the point

value approach or through the "plank-type" approach. A detailed discussion of the determination of the MACT floor and MACT for each emission type follows.

a. *Process Vents.* To establish the MACT floor for process vents, we determined both the level of control required and the vents to which control must be applied. All vents at the best performing facilities are being controlled using a flare or other combustion device. It is generally accepted that combustion devices achieve a 98 weight-percent reduction in HAP emissions; therefore, this is the MACT floor level of control for both new and existing sources.

Only two of the best performing facilities reported having any process vents, and the volumetric flow rates and HAP concentrations of the vents are not known. The information available was supplemented with information from the regulations and the permit condition with which the two facilities are complying in order to determine the applicability criteria for control. These requirements include: Texas regulation 30 Texas Air Control (TAC) Chapter 115 Subchapter B; 40 CFR part 60, subparts NNN and RRR. These regulations and the applicable permit condition all require the same level of control: Reduction of organic compounds by 98 weight-percent or to a concentration of 20 ppmv. The only differences in the applicable requirements are the cutoffs for determining whether control is required.

Both facilities that reported having vents are subject to the Texas regulation, whereas only one facility is subject to the requirements of 40 CFR part 60, subparts NNN and RRR. Therefore, the requirements of the Texas regulation are considered to represent the median level of control. The Texas regulation provides both a VOC concentration and flow rate cutoff for vents that must be controlled. The regulation requires that vents with a flow rate greater than or equal to 0.011 scmm and a VOC concentration greater than or equal to 500 ppmv must be controlled. Based on vent composition data provided by the surveyed facilities, approximately 10 percent of the VOC in process vent streams are HAP. Thus, we determined that the MACT floor for existing sources is to control process vents with a flow rate greater than or equal to 0.011 scmm and a HAP concentration greater than or equal to 50 ppmv by reducing HAP emissions by 98 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental

combustion air is used to combust the emissions).

For new sources, the most stringent applicable regulation is the basis for the control applicability cutoffs. Subpart NNN requires vents with a flow rate greater than or equal to 0.008 scmm to be controlled. Subpart NNN of 40 CFR part 63 does not specify a concentration cutoff, but analysis of vents that are required to be controlled based on the total resource effectiveness index indicated that vents with TOC concentrations less than 300 ppmv are not likely to be required to be controlled (see the memorandum "Process Vent Applicability Criteria" in the Consolidated Federal Air Rule Docket A-96-01 for a discussion of this analysis). Because it is assumed that TOC content is approximately equal to VOC content for ethylene vents and that 10 percent of the VOC in these process vent streams are HAP, the MACT floor for new sources is to control process vents with a HAP concentration greater than or equal to 30 ppmv and a flow rate greater than or equal to 0.008 scmm by reducing HAP emissions by 98 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions).

More stringent applicability cutoffs for control of process vents were considered in identifying above-the-floor options for both new and existing sources. One option more stringent than the MACT floor for new sources is to lower the flow rate control applicability criteria to 0.005 scmm as used in the HON. This cutoff is not significantly different than the new source MACT floor cutoff. Considering that there are so few process vents at ethylene manufacturing facilities, it is unlikely that many additional vents would be controlled or that additional emissions reductions would be achieved by lowering the cutoff. Therefore, the applicability criteria for the new source MACT level of control are the same as the new source MACT floor level of control.

For existing sources, the control applicability criteria for the new source MACT were considered as an above-the-floor option. Because there are relatively few process vents at ethylene manufacturing facilities and the difference between the existing source MACT floor and new source MACT is so small, it is unlikely that many additional vents, if any, would be required to be controlled if the new source applicability criteria are used. Therefore, it is expected that there will be minimal to no difference in the cost

of controls. We believe that the benefit of simplifying the proposed NESHAP by having the same control applicability cutoffs for process vents at new and existing sources greatly simplifies the requirements for vents and outweighs any additional cost. Thus, we determined that the process vent component of MACT is the same for existing sources as it is for new sources.

We do not have adequate data to prove this assumption and are soliciting comments and data to: (1) Support or refute the assumption that there are few vents with flow rates between 0.008 and 0.011 scmm and HAP concentrations between 30 and 50 ppmv, (2) aid in estimating the cost of controlling these vents if they do exist, and (3) support or refute that there is a benefit associated with simplifying the proposed NESHAP.

**b. Storage Vessels.** For storage vessel emissions, the five best performing facilities were ranked in order of the emissions reductions achieved through control equipment to determine the median facility. In establishing the storage vessel component of the MACT floor, we also determined the vessels to which controls would be applied.

It was not possible to construct the entire storage vessel component of the MACT floor based on the vessels at the median facility because it does not represent the full range of vapor pressures of stored materials or sizes of storage vessels. Additional information was obtained from applicable regulations and permit conditions. We determined that control requirements apply to storage vessels containing liquids with vapor pressures greater than or equal to 3.4 kilopascals (0.5 psia) and less than 76.6 kilopascals (11.1 psia). The level of control is based on storage vessel size. For storage vessels with capacities greater than 4 cubic meters (1,000 gallons) and less than 95 cubic meters (25,000 gallons), a submerged pipe must be used for filling the vessel unless more stringent controls are in place. For storage vessels with capacities greater than or equal to 95 cubic meters (25,000 gallons), the following equipment comprises the MACT floor at existing sources:

- An internal floating roof (IFR), an external floating roof (EFR), or fixed roof with a closed vent system routed to a process, fuel gas system, or control device.
- If the vessel has an IFR, a mechanical shoe or liquid-mounted primary seal, or a vapor-mounted secondary seal.
- If the vessel has an EFR, a mechanical shoe or liquid-mounted

primary and rim-mounted secondary seal.

- If the vessel has a vapor recovery system routed to a control device, the device must control HAP emissions by 95 weight-percent.

- Covers and gaskets on all access hatches, which are to be bolted.

The overall storage control efficiency for the two sources that perform better than the median facility was considered in determining the new source storage vessel component of the MACT floor. Storage vessels at the best performing facilities have the same control as the median facility except that all fittings on most of the storage vessels are controlled.

Requirements can be made more stringent than the existing source storage vessel component of the MACT floor by requiring controls that achieve a higher control efficiency. We determined that for vessels with capacities greater than or equal to 95 cubic meters (25,000 gallons), the MACT level of control for existing sources is the MACT floor level of control with the addition of control for all fittings. This determination is based on a reasonable incremental cost effectiveness for the addition of controlled fittings. We determined that it is more cost effective to implement control of all fittings than it is to implement the storage vessel component of the MACT floor requirements alone. No options more stringent than the MACT floor for new sources were identified. Therefore, the MACT level of control for new sources is the same as the MACT level of control for existing sources.

**c. Transfer Racks.** Only one of the best performing facilities has transfer racks, and emissions are not controlled. Due to the limited amount of information available, it is not possible to address how transfer of different materials or at different rates would be controlled by the best performing facilities using only survey responses. For this reason, we supplemented the survey response data with information from an applicable State regulation. The control requirements of Texas regulation 30 TAC Chapter 115 Subchapter C, Volatile Organic Compound Transfer Operations, Loading and Unloading of Volatile Organic Compounds, would apply to four of the five best performing facilities if they transfer materials having vapor pressures and at rates that meet or exceed the control applicability cutoffs of the proposed NESHAP.

Subchapter C requires control of loading greater than or equal to 20,000 gallons per day of VOC with a true vapor pressure greater than or equal to

0.5 psia. Loading racks meeting the control requirement applicability threshold are to be controlled with a vapor recovery system that achieves a 90 percent recovery or a vapor balancing system that maintains a pressure equal to or greater than 1.5 psia. It is assumed that the efficiency achieved for VOC emission control is the same as the efficiency achieved for HAP control in the case of ethylene manufacturing transfer racks. Subchapter C also includes requirements for transport vessels, lines, and connection systems. Because four of the five facilities are subject to the requirements of subchapter C and none of them are subject to or are controlling to levels more stringent than subchapter C, we determined that the transfer rack component of the MACT floor for new and existing sources is the set of requirements included in subchapter C.

One above-the-floor option for existing sources is requiring a greater reduction in emissions. The HON and 40 CFR part 61, subpart BB (Benzene Transfer Operations NESHAP), require 98 weight-percent control of HAP emissions from transfer racks. We determined it is appropriate to require more stringent control, specifically 98 weight-percent control of HAP emissions or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions). Because an EMPU is either equipped with a flare or has access to a common flare, if a facility decides to equip transfer racks with a closed vent system and a control or recovery device, the most cost-effective option would be to route emissions to an existing flare. This is supported by the fact that all transfer racks at ethylene manufacturing facilities that we estimate are controlled use a flare as a control device. Routing emissions to the flare would not cost more than routing emissions to another control device and would cost less than constructing a new control or recovery device. It is generally accepted that flares achieve a 98 weight-percent reduction in HAP emissions. Since emissions can be reduced by 98 weight-percent at the same cost as reducing them by 90 weight-percent, we have determined that the appropriate MACT level of control for existing sources is 98 weight-percent reduction in HAP emissions (if a closed vent system and control device are used) or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the

emissions). The same logic applies to new sources. The least expensive control option for a new source would be to route transfer emissions to an existing flare or new flare that must be constructed anyway. Therefore, the MACT level of control for new sources is the same as the level of control for existing sources.

d. *Waste*. According to the survey responses, all of the best performing facilities are controlling to comply with the requirements of the BWON. Therefore, the MACT floor for both new and existing sources is based on the control level achieved at the best performing facilities. Although the purpose of the BWON is to control benzene emissions, the control technologies in use to comply with the BWON also result in the control of other HAP. Based on data received in the survey responses, waste streams from each EMPU that contain benzene also contain other HAP, primarily 1,3-butadiene, cumene, ethyl benzene, hexane, naphthalene, styrene, toluene, and xylene. These HAP are similar to benzene in solubility and volatility. Therefore, we expect that these HAP are controlled to a similar level as benzene by management and treatment of the waste streams.

The treatment requirements of the BWON require removal of benzene from the waste stream to 10 ppmw or by 99 weight-percent. For each closed vent system and control device used to comply with the requirements of the BWON, a benzene reduction of 98 weight-percent must be achieved. Because facilities controlling waste under the BWON are also achieving equal control of other HAP with physical properties similar to benzene, the control requirements of the MACT floor are the control requirements of the BWON for benzene as applied to total HAP. Thus, the waste component of the MACT floor requires removal of total HAP from the waste stream to 10 ppmw or by 99 weight-percent, and for each closed vent system and control device used to comply with the requirements of the proposed NESHAP, a total HAP reduction of 98 weight-percent must be achieved.

Today's proposed standards include control applicability cutoffs which are also based on the BWON. We considered whether the best performing facilities control all waste streams, and whether we could determine a HAP concentration cutoff and flow rate cutoff as part of the MACT floor. Generally, the BWON does not require management or treatment of waste streams containing less than 10 ppmw benzene or having a flow rate less than

0.02 liters per minute. We considered using the same cutoffs for the proposed NESHAP. However, facilities controlling waste for benzene are also achieving concurrent control of other HAP with physical properties similar to benzene. In addition, expressing the cutoff concentration in today's proposal as a benzene concentration could result in a cutoff that might exclude from control some waste streams that are similar in terms of HAP concentration as those being controlled at the floor. Since 10 ppmw benzene is approximately the same as 10 ppmw HAP for most of the waste streams, we are expressing the cutoff for the MACT floor as not requiring control of streams containing less than 10 ppmw total HAP or with a flow rate less than 0.02 liters per minute.

Finally, the BWON applies to facilities with a TAB quantity of 10 Mg/yr or greater. If a facility's waste streams have less than 10 Mg/yr benzene, the facility does not have to manage or treat waste to comply with the BWON. This cannot apply to MACT because MACT is a technology-based standard, and the MACT floor is based on the control technology performance for control of HAP at the best performing facilities. All of the best performing facilities are controlling HAP from waste streams. Therefore, the MACT floor level of control applies at each EMPU, regardless of the TAB. We have identified no rationale to support the subcategorization of waste operations based on the TAB.

One above-the-floor option is to have no control applicability cutoffs. We have determined that the emissions reductions that would be achieved by the management and treatment of all waste streams would result in considerably higher costs that cannot be justified.

Additional above-the-floor control options include more stringent management and treatment requirements. However, the management requirements of the BWON are already comprehensive and include all equipment used to transport waste. Similarly, the treatment requirements are quite stringent: removal of total HAP from the waste stream to 10 ppmw or by 99 weight-percent. We have not identified more stringent requirements for waste treatment. Therefore, we have determined that MACT for both new and existing sources is the MACT floor level of control.

e. *Heat Exchange Systems*. No control devices for cooling water were reported by the best performing sources. However, using the survey data, a relationship was found between HAP



emissions and how often a facility monitors cooling water for the presence of compounds that would indicate a leak. This relationship likely exists because once a leak is detected, actions are taken to repair the leak or take the leaking equipment out of service, thereby minimizing emissions from cooling water. Three of the five best performing facilities monitor monthly, one monitors weekly, and one reported using an on-line head space analyzer (a head space analyzer does not provide adequate indication of leaks to cooling water and was not considered in determining the heat exchange system component of the MACT floor).

We have determined that the heat exchange system component of the MACT floor for existing sources is a cooling water LDAR program that includes monthly monitoring because this is the frequency of monitoring at the median facility. The heat exchange system component of the MACT floor for new sources includes weekly monitoring because this is the most frequent monitoring performed.

One above-the-floor option is to require weekly monitoring at existing sources. Other above-the-floor options, which are not currently in place at any of the surveyed ethylene manufacturing facilities, are monitoring of the cooling water on a daily basis or monitoring continuously.

We have determined that the MACT levels of control are the floor levels of control for new and existing sources: a LDAR program with monthly monitoring for existing sources and weekly monitoring for new sources. Based on the information we have, the average monitoring frequency in practice by the best performing 12 percent of the affected sources is monthly. We found only one facility monitoring more frequently (weekly). Based on these findings, cost considerations and anticipated emissions reductions, we believe that, for existing sources, monthly monitoring is an adequate frequency to satisfy MACT.

If a leak is detected, repair is required to be completed within 15 calendar days unless delay is required for reasons specified in the proposed standards. The time allowed for repair is consistent with the time allowed for repair for other leaking equipment at an EMPU, and we have determined that it is an appropriate amount of time to allow for repair to heat exchange equipment as well.

In addition to specifying the frequency of cooling water monitoring required, the proposed standards specify procedures for collecting and

analyzing the samples. The test methods specified are based on the requirements of the HON which covers SOCOMI sources having heat exchange system processes similar to ethylene production facilities. The requirements for where to obtain a cooling water sample are unique to an EMPU. Ethylene production requires a relatively high cooling water usage, approximately eight times that for a SOCOMI unit. We are concerned that, due to the high total flow rate of cooling water, a leak in an EMPU would result in a concentration so low it would go undetected. To address this concern, we are requiring that cooling water be sampled at the inlet and outlet of each heat exchanger. This will ensure that the cooling water will be tested at the lowest possible flow rate, where leaks will be the least diluted. To reduce the burden that this requirement will cause, only heat exchangers used to cool fluids containing 5 percent HAP or greater are required to be tested. This is the same cutoff used to determine which components must be monitored as part of the LDAR program for equipment leaks.

*f. Equipment Leaks.* The equipment leak emission types include emissions from specific components (pumps, compressors, pressure relief devices, gas valves, light liquid valves, heavy liquid valves, and connectors) of the process. A method for estimating controlled and uncontrolled equipment leak emissions from facilities in the SOCOMI was used to quantify the effectiveness of control strategies in use at the five best performing facilities. This method is described in the 1995 Protocol for Equipment Leak Emission Estimates (EPA document 453/R-95-017).

The median control effectiveness is achieved by control strategies at three of the five best performing facilities. These three control strategies are considered to represent the equipment leak component of the MACT floor for existing sources. The median is expressed as the control effectiveness achieved by control strategies at three facilities because the control effectiveness achieved by these facilities is equivalent. The control strategies used by the three median facilities include an LDAR program that requires monitoring of valves, connectors, and in some cases compressors, pumps, and pressure relief devices. Emissions from compressors, pumps, and pressure relief devices that are not monitored are routed to control devices. The level of emissions used by the facilities to indicate a leak is 500 ppmv.

Review of control strategies in use, permit requirements, and regulations for

similar sources did not reveal any equipment leak control strategies more stringent than the MACT floor for existing sources. This is not unexpected considering the stringency of the MACT floor at existing sources. The equipment leak portion of the MACT floor requires all components to be monitored or controlled, so no additional components could be added to the requirements. The leak definition of the floor, 500 ppmv, is the lowest used in the ethylene manufacturing industry, with one exception. One facility is using a 300 ppmv leak definition. We do not have adequate data to determine how emissions would be impacted by using a leak definition of 300 ppmv rather than 500 ppmv. The Protocol for Equipment Leak Emission Estimates document (EPA-453/R-95-017) does not include emission factors for leak definitions less than 500 ppmv. Due to the level of accuracy of the sampling and testing methods and the relatively small difference in leak definitions, the difference in emissions is likely to be minimal. We have not identified any options more stringent than the equipment leak floor component for existing sources. Therefore, the MACT level of control for equipment leaks at new and existing sources is based on the floor level of control for existing sources.

*g. Furnaces.* Typically, the ethylene production process involves converting large hydrocarbon molecules into smaller molecules through a process referred to as "thermal cracking." This takes place in the ethylene cracking furnace. Based on information provided in survey responses, the furnaces are fired with natural gas, refinery gas, off-gas from the production process, or a combination of the three. Ethylene cracking furnaces are expected to have relatively low HAP emissions. The fuels burned in cracking furnaces contain relatively little HAP, and most organic HAP are destroyed in the combustion process. In fact, process heaters are used as control devices for process vents containing HAP. We decided to consider standards for gas-fired process heaters because HAP emissions can result from incomplete combustion, and natural and refinery gas combustion has been shown to result in emissions of formaldehyde. Ethylene cracking furnaces could have been included in separate MACT standards that are currently being considered for process heaters. However, we decided to include cracking furnaces in the proposed NESHAP for ethylene manufacturing in order to establish comprehensive MACT standards that

cover all of the HAP emission types within an ethylene manufacturing process unit.

None of the surveyed facilities reported controlling HAP emissions from furnaces using an add-on control device. In addition to add-on controls, we considered control techniques that may minimize HAP emissions. As combustion destroys most organic HAP, it is assumed that those furnaces operated with optimal combustion conditions would have the lowest HAP emissions. One difficulty in pursuing a level of good combustion as a regulatory requirement is in determining a parameter that accurately indicates good combustion. Excess oxygen has been suggested as a parameter that indicates whether good combustion is being achieved. Based on survey responses and discussions with industry representatives, the majority of ethylene furnaces are equipped with monitors for excess oxygen. At least one facility has automatic controls for excess oxygen. Generally, excess oxygen is monitored to ensure that adequate oxygen is available for combustion, and that efficient combustion is being achieved. Oxygen levels may also be monitored to ensure that they do not exceed a level that would result in excessive NO<sub>x</sub> emissions. Because excess oxygen is typically controlled by closing and opening dampers by hand, it is not precisely controlled, but rather allowed to fluctuate within an acceptable range. There is no evidence to suggest that any of the facilities have determined the relationship between excess oxygen and HAP emissions. Theoretically, three different furnaces, one with automatic excess oxygen controls, one with an excess oxygen monitor without automatic controls, and one without excess oxygen monitors could have the same level of HAP emissions because none of them are being operated to specifically control HAP emissions. Data are not available to determine whether HAP emissions reductions are actually being achieved by facilities monitoring and/or controlling excess oxygen. Therefore, we cannot require the use of excess oxygen monitors for controlling HAP emissions from ethylene cracking furnaces.

Further, we have not identified any add-on controls or control techniques currently in use to control HAP emissions from ethylene cracking furnaces. The MACT floor for ethylene cracking furnaces is no control, and there are no known above-the-floor options. Thus, although ethylene cracking furnaces were considered in developing the proposed NESHAP, no

regulatory requirements for them are included.

h. *Decoking*. Coke is periodically removed from the coils within an ethylene cracking furnace through a process referred to as "decoking." During the decoking process, the furnace is isolated from the rest of the ethylene manufacturing process, and steam is used to strip the coke from the coils. The steam, products of combustion, and coke that exit the furnace coils are typically cooled, either with quench water or in a heat exchanger. Water and coke particles are removed with a knock-out pot or other mechanical control device. The resulting water stream is routed back into the process or is discarded. The non-condensed stream is emitted to the atmosphere or in some cases, routed into the furnace firebox.

None of the facilities that received the section 114 survey reported having any test data for emissions from coke combustion. We were not able to locate any test data or published emission factors for coke combustion. There are reasons to believe HAP emissions from decoking are relatively low. It is not likely that the coke contains much volatile material, and volatile material should be destroyed during the combustion phase of the decoking process. However, the conditions within the coils are not expected to be conducive to good combustion, which may result in volatile material not being destroyed. Additionally, HAP emissions may be created in the decoking process. Another reason that it is important to consider emissions from decoking is the frequency with which it occurs. A typical furnace may be decoked between 8 and 12 times per year. A typical ethylene unit may comprise eight furnaces. Assuming a decoke lasts 36 hours, a typical ethylene unit may have a decoke of one of its furnaces occurring 40 percent of the time.

Due to the potential for HAP emissions and the frequency of decoking, we believe that it is necessary to address decoking in the proposed NESHAP. We have determined that decoking is a shutdown activity and will, therefore, be addressed through a facility's startup, shutdown, and malfunction plan. The definition for a shutdown in the proposed NESHAP includes "the cessation of operation of a regulated source and equipment required or used to comply with this subpart \* \* \* for purposes of \* \* \* periodic maintenance \* \* \*." During decoking, the cracking process ceases in order to allow the furnace to be decoked, which is essentially a maintenance activity. Defining decoking

as a shutdown activity requires decoking operations to be included in a facility's startup, shutdown, and malfunction plan. This will require owners and operators of ethylene units to include in their plan procedures for decoking that will minimize emissions. This requirement is not expected to be burdensome to owners and operators as it is expected that most facilities already have written decoking procedures.

Although it has been determined that the most appropriate way to address decoking is to consider it a shutdown activity, we reviewed information available to determine if it would be possible to establish a MACT emission limit for decoking. In the survey responses, two facilities reported routing decoking emissions from all furnaces to the furnace firebox. This technique may control HAP emissions from decoking, if there are any. However, its effectiveness is unknown. We are not aware of any test data for emissions before or after routing through the furnace firebox. Based on the information available, if a MACT analysis were performed for decoking, it is likely that the floor level of control would be no control. Routing emissions to the firebox could be considered as an above-the-floor option. However, it would be difficult to evaluate this option because its effectiveness is unknown. The results of the review of information available for decoking confirmed our decision to regard decoking as a shutdown activity.

In addition to air emissions resulting from decoking operations, it is also possible that HAP may be present in the condensate stream that results when the steam, products of combustion, and coke are cooled and condensed. If the condensate stream is not recycled into the process and is discarded, it will be covered under the waste requirements that are also proposed today. Therefore, all possible sources of emissions from decoking operations are covered by the proposed NESHAP.

#### 4. How Did EPA Select the Compliance, Monitoring, Recordkeeping, and Reporting Requirements?

We selected the monitoring, recordkeeping, and reporting requirements of 40 CFR part 63, subparts YY, SS, TT, UU, and WW, to demonstrate and document compliance with the proposed NESHAP for ethylene production. The procedures and methods set out in these subparts are, where appropriate, based on procedures and methods that we previously developed for use in implementing standards for emission point sources

similar to those being proposed for the Ethylene Production source category.

General compliance, monitoring, recordkeeping, and reporting requirements that would apply across source categories and affected emission points are contained within 40 CFR part 63, subpart YY (§§ 63.1108 through 63.1113). We specify the applicability assessment procedures necessary to determine whether an emission point is required to apply control. These requirements are dependent on the emission point for which control applicability needs to be assessed and the form of the applicability cutoff selected for an individual source category (e.g., HAP concentration cutoff level, above which, control is required).

We selected emission point and/or control device-specific monitoring (including continuous monitoring), recordkeeping, and reporting requirements included under common control requirements in subparts promulgated for storage vessels (40 CFR part 63, subpart WW); equipment leaks (40 CFR part 63, subpart UU or TT); and closed vent systems, control devices, recovery devices and routing to a fuel gas system or a process (40 CFR part 63, subpart SS). These subparts contain a common set of monitoring, recordkeeping and reporting requirements. We established these subparts to ensure consistency of the air emission requirements applied to similar emission points with pollutant streams containing gaseous HAP.

We believe that the compliance, monitoring, recordkeeping, and reporting requirements of subparts YY, SS, TT, and UU are appropriate for demonstrating and documenting compliance with the requirements proposed for the Ethylene Production source category. This is because these requirements were established for standards with similar form, and similar emission points with pollutant streams of gaseous HAP for which we are requiring MACT compliance demonstration and documentation under this proposal.

#### *D. Summary of Environmental, Energy, Cost, and Economic Impacts*

##### 1. What Are the Air Quality Impacts?

We estimate that the proposed NESHAP will decrease HAP emissions by 992 Mg/yr (1,090 TPY) (a 60 percent reduction) and decrease VOC emissions by 9,271 Mg/yr (10,188 TPY) (a 64 percent reduction).

##### 2. What Are the Cost Impacts?

The cost of implementing the control techniques is expected to vary widely

between ethylene manufacturing facilities. The cost of control techniques for some facilities will be minimal because they already have in place the work practices, equipment, and control devices required to comply with the proposed NESHAP. The highest costs will be incurred by facilities that are not currently complying with the BWON and will have to add waste management and treatment equipment to comply with the proposed NESHAP. We estimate the average cost of controls for these facilities to be \$1.03 million. For facilities that already have waste management and treatment equipment, we estimate the average cost to be \$7,600.

##### 3. What Are the Economic Impacts?

The economic impact analysis for the proposed NESHAP for ethylene production shows that the annual compliance costs are less than 0.01 percent of the sales for the 22 affected firms. In fact, seven firms are expected to experience small savings in costs as a result of implementing the proposed NESHAP. Therefore, no adverse impact is expected to occur for these firms in the ethylene manufacturing industry. Estimation of the cost and economic impacts of the proposed NESHAP is detailed in memoranda included in the docket for the proposed NESHAP (Docket No. A-98-22).

##### 4. What Are the Nonair Health, Environmental and Energy Impacts?

We believe that there would not be significant adverse nonair health, environmental, or energy impacts associated with the proposed NESHAP for the Ethylene Production source category. This is based on the types of control techniques expected to be used to comply with the proposed NESHAP. The majority of control techniques are either work practices, such as an LDAR program for equipment leaks and cooling water; or equipment standards, such as floating roofs for storage vessels which do not cause increases in water pollution; or solid waste. Because most of the control techniques expected to be used to comply with the proposed NESHAP are either work practices or equipment standards, minimal increases in energy use are expected.

#### *E. Solicitation of Comments*

Representatives of the ethylene industry have reviewed our MACT floor approach and suggested that the MACT floor should not include connector monitoring. Industry does not refute that facilities are complying with State requirements for connector monitoring, or that the best performing facilities are

those with the most stringent LDAR programs. However, industry believes the emissions from connectors are inflated due to the fact that we rely upon the SOCFI emission factors, which they believe are not appropriate for connectors in the ethylene industry. Industry representatives have submitted data to support their position that emissions from connectors are very low and, therefore, routine connector monitoring at ethylene facilities does not result in reduced emissions. Industry has concluded that the use of different ethylene industry-derived emission factors for connectors would mean that the determination of the best performing 12 percent of facilities would not be as heavily influenced by connector emissions as it is in our analysis. They suggest that a different set of five facilities (equivalent to the best performing 12 percent of facilities) would be among the best performers than the five facilities upon which the MACT floor for this proposal was determined.

The data provided by industry, along with correspondence from industry representatives and summaries of stakeholder meetings have been placed in the docket (Docket No. A-98-22). We are soliciting comment on these data and industry's conclusions. We did not receive industry's data in time for evaluation prior to this proposal.

We are also soliciting comments and data to support the determination of the process vent component of the MACT for existing sources. The MACT floor level of control for existing sources requires that vents with flow rates greater than or equal to 0.011 scmm and HAP concentrations greater than or equal to 50 ppmv must be controlled to reduce HAP emissions by 98 weight-percent or to 20 ppmv. An above-the-floor option considered is to require vents with flow rates greater than or equal to 0.008 scmm and HAP concentration of 30 ppmv or greater to be controlled. This option is based on 40 CFR part 60, subpart NNN—Distillation Operations NSPS, which applies to one of the best performing facilities and is the same as the process vent component of the MACT for new sources. We do not have data to assess the cost effectiveness of lowering the control applicability cutoffs for existing sources, but we believe the cost would be minimal because there are relatively few process vents, and the cutoffs being considered are so similar to the MACT floor. Additionally, having the same cutoffs for new and existing sources would simplify compliance with, and enforcement of, the proposed NESHAP. We are soliciting comments and data to:

(1) Support or refute the assumption that there are few vents with flow rates between 0.008 and 0.011 scmm and HAP concentrations between 30 and 50 ppmv, (2) aid in estimating the cost of controlling these vents if they do exist, and (3) support or refute that there is a benefit associated with simplifying the proposed NESHAP by having the same requirements for vents at new and existing sources.

We are also soliciting comments on the monitoring requirements for heat exchangers. The proposed standards require that cooling water samples must be collected at the inlet and outlet of each heat exchanger that cools process fluids with 5 percent HAP or greater. An alternative option that was considered would allow samples to be collected at the entrance and exit of each heat exchange system, or at locations where the cooling water enters and exits each heat exchanger, or any combination of heat exchangers as long as the cooling water flow rate at the sampling point does not exceed a specified value. We do not have data to determine the maximum flow rate to ensure that leaks will be detected with the test methods used. We are soliciting comments and flow rate data to support or refute the proposed requirements for sampling cooling water at EMPU heat exchangers. We are also soliciting comment to support or refute the assumption that the applicability criteria of 5 percent HAP is appropriate for determining which heat exchangers must be monitored for leaks.

## V. Spandex Production

### A. Introduction

#### 1. What Are the Primary Sources of Emissions and What Are the Emissions?

The HAP emission points covered by the proposed NESHAP include process vents, storage vessels, and fiber spinning lines. The HAP emitted from spandex production facilities include toluene and TDI. The proposed NESHAP would regulate emissions of these compounds, as well as other incidental organic HAP that are emitted during the manufacture of spandex fiber. The 1997 baseline HAP emissions estimate for the facilities using the reaction spinning process is 303 Mg/yr (334 TPY). The majority of these emissions are from process vents and fiber spinning lines.

#### 2. What Are the Health Effects Associated With the HAP Emitted?

The principle HAP associated with spandex production facilities is toluene; another HAP emitted in very small quantities is TDI.

*Toluene.* Effects on the central nervous system have been reported from acute (short-term) and chronic (long-term) exposure to toluene and include dysfunction, fatigue, sleepiness, headaches, and nausea. Reported effects from short-term high level exposures also include cardiovascular symptoms in humans. Additional long-term exposure effects include irritation of the eye, throat and respiratory tract. Studies of workers occupationally exposed and animals exposed in the laboratory have reported adverse effects on the developing fetus. Due to a lack of information for humans and inadequate animal evidence, EPA does not consider toluene classifiable as to human carcinogenicity.

*TDI.* Acute exposure to high levels of TDI can result in severe irritation of the skin and eyes and affects the respiratory, gastrointestinal, and central nervous systems. Chronic exposure of workers on the job has resulted in significant decreases in lung function and an asthma-like reaction characterized by wheezing, dyspnea, and bronchial constriction. Animal studies have reported significantly increased incidences of tumors of the pancreas, liver, and mammary glands from exposure to TDI via gavage (experimentally placing the chemical in the stomach). The EPA has not evaluated TDI for carcinogenicity, however, the International Agency for Research on Cancer has classified TDI as a possible human carcinogen.

### B. Summary of Proposed Standards for Spandex Production

#### 1. What Is the Source Category To Be Regulated?

The Spandex Production source category includes any facility that manufactures spandex fiber by the reaction spinning process. Spandex fiber is a long-chain, synthetic polymer comprised of at least 85 percent by mass of a segmented polyurethane. The spandex production process involves the reaction of a diisocyanate with a polyol (polyester or polyether glycol) to generate diisocyanate-terminated prepolymer. The prepolymer is extruded (or spun) while simultaneously reacting with a chain-extender in a spin bath to generate spandex fiber.

There are two spandex production facilities in the United States that use the reaction spinning process, and both are presently major sources. The proposed NESHAP would apply to any major sources that produce spandex fiber by reaction spinning. Final determination of major source status

occurs as part of the compliance determination process undertaken by each individual source. Area sources would not be subject to the proposed NESHAP.

In reaction spinning: (1) The spandex prepolymer is extruded into spinning baths containing HAP solvent, (2) the baths are covered with hoods and are open to the room air, (3) the hoods and room air are vented to an emission control device, (4) the spandex polymer is generated simultaneously with extrusion, (5) drying is a separate process step, and (6) there are large quantities of HAP emissions.

#### 2. What Is the Affected Source?

The affected source consists of all process vents, storage vessels, and fiber spinning lines that are associated with reaction spinning spandex production processes located at a major source of HAP emissions, as defined in 40 CFR part 63, subpart A.

#### 3. What Are the Emission Limits, Operating Limits, and Other Standards?

The following discussion briefly summarizes the proposed control requirements for the affected emission points.

a. *Process Vents.* For process vents, HAP emissions are required to be controlled by routing emissions through a closed vent system to one of the following: (1) A flare, (2) an enclosed combustion device that reduces HAP emissions by 95 weight-percent or to a concentration of 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions), or (3) a recovery device that reduces HAP emissions by 95 weight-percent or to a concentration of 20 ppmv. Requirements are the same for both new and existing sources.

b. *Storage Vessels.* Storage vessels with capacity greater than 47.3 cubic meters (12,500 gallons) that store materials with a maximum true vapor pressure of organic HAP greater than or equal to 3.4 kilopascals (0.5 psia) are required to control organic HAP emissions by using an external floating roof equipped with specified primary and secondary seals, by using a fixed roof with an internal floating roof equipped with specified seals, or by venting emissions through a closed vent system to a control device achieving 95 weight-percent control. Requirements are the same for both new and existing sources.

c. *Fiber Spinning Lines.* For fiber spinning lines, HAP emissions are required to be captured and vented through a closed vent system to a

control device achieving 95 weight-percent control or 20 ppmv (corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions). Requirements are the same for both new and existing sources.

#### 4. What Are the Testing and Initial and Continuous Compliance Requirements?

We are proposing testing and initial and continuous compliance requirements that are, where appropriate, based on procedures and methods that we have previously developed and used for emission points similar to those for which we are proposing NESHAP with this action.

For continuous compliance, you must install continuous parameter monitoring systems (CPMS) and conduct a performance evaluation of the CPMS. You must identify a relevant parameter that will indicate the control device is operating properly and then continuously monitor the selected parameter.

#### 5. What Are the Notification, Recordkeeping, and Reporting Requirements?

If you are subject to requirements under the Generic MACT standards subpart, you would be required to comply with general notification, recordkeeping, and reporting requirements.

You must submit one-time reports of the (1) start of construction for new facilities, (2) anticipated and actual start-up dates for new facilities, and (3) physical or operational changes to existing facilities. You are also required to maintain all records for a period of at least 5 years.

If you own or operate an affected source that has an initial startup date before the promulgation date of standards for that affected source under the Generic MACT standards subpart, you must submit a one-time initial notification. You must submit this notification within 1 year after the promulgation date of standards for an affected source under the Generic MACT standards subpart (or within 1 year after the affected source becomes subject to the Generic MACT standards subpart).

For sources constructed or reconstructed after the effective date of the relevant standards, the General Provisions require that the source submit an application for approval of construction or reconstruction. The application is required to contain information on the air pollution control that will be used for each potential HAP emission point.

The information in the Initial Notification and the application for construction or reconstruction will enable enforcement personnel to identify the number of sources subject to, or are already in compliance with, the standards.

You must also submit a Notification of Compliance Status report. You must have this notification signed by a responsible company official who certifies its accuracy and that the affected source has complied with the relevant standards. You must submit the results of any required performance tests (as applicable) as part of the Notification of Compliance Status report. You must submit the Notification of Compliance Status report within 60 days after the compliance date specified for an affected source subject to the Generic MACT standards subpart.

For CPMS, you must submit a report of the performance evaluation results to the delegated authority. You must also submit reports of parameter monitoring deviations and CPMS performance deviations to the delegated authority semiannually.

#### C. Rationale for Selecting the Proposed Standards for Spandex Production

##### 1. How Did EPA Select the Source Category?

We listed Spandex Production as a category of major sources of HAP on July 16, 1992 (57 FR 31576). Today's proposed standards apply to reaction spinning processes only.

##### 2. How Did EPA Determine the Affected Source?

The affected source is the combination of all regulated operations at a spandex production facility. The following regulated operations are typically performed at spandex production facilities and are part of the affected source: process vents, storage vessels, and fiber spinning lines. These are the typical operations found at spandex production facilities, and we determined MACT for these operations.

##### 3. How Did EPA Determine the Basis and Level of the Proposed Standards for Existing and New Sources?

There are two spandex production facilities in the United States that produce spandex fiber by reaction spinning; these facilities are owned by one company. Both are major sources as defined under section 112(a) of the CAA.

For a source category with fewer than 30 major sources, section 112(d)(3) of the CAA directs that the MACT floor be

based on the average emission limitation achieved by the best performing five sources. The MACT floor for new sources in a source category is required to reflect the level of control being achieved by the best controlled similar source. In setting the MACT for spandex production using reaction spinning, we looked at the level of control presently in place at the two reaction spinning major source facilities.

At reaction spinning process spandex production facilities, there are a number of process vent streams containing HAP. The process vent types include vents associated with prepolymer reactors, dryers, and the solvent recovery system. The floor for process vents at reaction spinning processes requires 95 percent control by venting through a closed vent system to a control device. The two reaction spinning process facilities already have emission controls in place for process vents that are equivalent to those required by the Generic MACT NESHAP. We are not aware of any additional controls that would get further emissions reductions that would be more effective or reasonable for beyond-the-floor control for process vents. Therefore, MACT for process vents is the floor level of control.

The storage vessel control requirements in 40 CFR part 63, subpart WW, also called "Level 2" storage vessel controls, require the vessels to be equipped with a floating roof or covered and vented through a closed vent system to a control device. The two reaction spinning process facilities already have Level 2 emission controls on their storage vessels, and this level of control is considered to be the floor. We are not aware of any additional controls that would get further emissions reductions and be more effective or reasonable for beyond-the-floor control for storage vessels. Therefore, MACT for storage vessels at reaction spinning process spandex production facilities is the MACT floor.

During the fiber spinning step, HAP are volatilized from the spin bath solvent tanks, washing tanks, and the wet belt dryers. The solvent tanks, wash tanks, and wet belt dryers are covered with hoods and vented to an emission control device. There are also emissions into the room air, and room air is vented to an emission control device. At the two facilities in this source category, emissions from the fiber spinning lines are controlled by capture and subsequent routing to an emission control device. The floor for fiber spinning lines is capture of emissions around the spinning, washing and wet belt dryer areas of the spinning line and

venting to a control device that reduces HAP emissions by 95 weight-percent. We are not aware of any additional controls that would get further emissions reductions and be more effective or reasonable for beyond-the-floor control for fiber spinning lines. Therefore, MACT for fiber spinning lines is the floor level of control.

#### 4. How Did EPA Select the Compliance, Monitoring, Recordkeeping, and Reporting Requirements?

We selected the monitoring, recordkeeping, and reporting requirements of 40 CFR part 63, subparts SS and WW, to demonstrate and document compliance with the spandex production standards. The procedures and methods set out in these subparts are, where appropriate, based on procedures and methods that we previously developed for use in implementing standards for emission point sources similar to those being proposed for the Spandex Production source category.

General compliance, monitoring, recordkeeping, and reporting requirements that would apply across source categories and affected emission points are contained within 40 CFR part 63, subpart YY (*i.e.*, §§ 63.1108 through 63.1113). We specify the applicability assessment procedures necessary to determine whether an emission point is required to apply control. These procedures are dependent on the emission point for which control applicability needs to be assessed and the form of the applicability cutoff selected for an individual source category (*e.g.*, a HAP concentration cutoff level, above which control is required).

We selected monitoring (including continuous monitoring), recordkeeping, and reporting requirements included under common control requirements in subparts promulgated for storage vessels (40 CFR part 63, subpart WW), and closed vent systems, control devices, recovery devices and routing to a fuel gas system or a process (40 CFR part 63, subpart SS). These subparts contain a common set of monitoring, recordkeeping and reporting requirements. We established these subparts to ensure consistency of the air emission requirements applied to similar emission points with pollutant streams containing gaseous organic HAP. The rationale for the establishment of these subparts and requirements contained within each subpart is presented in the proposal preamble for the Generic MACT standards in 40 CFR part 63, subpart YY (63 FR 55186–55191).

We believe that the compliance, monitoring, recordkeeping, and reporting requirements of 40 CFR part 63, subparts WW and SS, are appropriate for demonstrating and documenting compliance with the requirements proposed for the Spandex Production source category. This is because these requirements were established for standards with similar formats and similar emission points with pollutant streams of gaseous organic HAP for which we are requiring MACT compliance demonstration and documentation under this proposal.

#### D. Summary of Environmental, Energy, Cost, and Economic Impacts

##### 1. What Are the Air Quality Impacts?

There are no additional emissions reductions achieved by the proposed NESHAP. The level of control required by the proposed NESHAP is already in place at the two affected reaction spinning facilities.

##### 2. What Are the Cost Impacts?

The total estimated annual compliance cost of the proposed NESHAP for the Spandex Production source category is \$78,040. This estimate includes annualized capital costs for monitoring equipment purchased. Annual costs also include monitoring, recordkeeping, and reporting costs. Costs were not included for control equipment since this is already in place at the two reaction spinning process facilities.

The capital costs are estimated to be \$32,820 (in 1998 dollars). The capital costs are for purchase of thermocouples and liquid flow transducers for CPMS equipment, and closed vent systems leak detection monitors. These costs are more than likely an overestimate since the two affected facilities already have monitors on their carbon adsorbers.

##### 3. What Are the Economic Impacts?

The goal of the economic impact analysis is to estimate the market response of the spandex production facilities to the proposed NESHAP and to determine the economic effects that may result from the proposed NESHAP. The Spandex Production source category contains five facilities, but only the two facilities that use the reaction spinning process are affected by the proposed NESHAP. These potentially affected facilities are owned by one company.

Spandex fiber production leads to potential HAP emissions from fiber spinning lines, storage tanks, and process vents; however, the emission sources are well controlled by the

affected spandex manufacturing facilities. The mandated levels of control are met at these sources; therefore, no costs are expected to be incurred by the spandex facilities in order to comply with the proposed NESHAP. Instead, the compliance costs for the proposed NESHAP relate primarily to monitoring, reporting, and recordkeeping activities. The estimated total annualized costs for the proposed NESHAP are \$78,040, which represents less than 0.01 percent of the revenues of the companies that own the spandex manufacturing facilities. The proposed NESHAP are, therefore, expected to have a negligible impact on the Spandex Production source category.

The economic impacts at the facility and company levels are measured by comparing the annualized compliance costs for each entity to its revenues. A cost-to-sales ratio is first calculated and then is multiplied by 100 to convert the ratio into percentages. For the proposed NESHAP, a cost-to-sales ratio exceeding 1 percent is determined to be an initial indicator of the potential for a significant facility impact. Revenues at the facility level are not available, therefore estimated facility revenues received from the sale of spandex fiber are used. Both affected facilities are expected to incur positive compliance costs. The ratio of costs to estimated revenues range from a low of 0.22 percent to a high of 0.35 percent. Thus, on average, the economic impact of the proposed NESHAP is minimal for the facilities producing spandex fibers.

The share of compliance costs to company sales are calculated to determine company level impacts. One company owns the two affected facilities, so only one firm faces positive compliance costs from the proposed NESHAP. The ratio of costs to company revenues is 0.10 percent. At the company level, the proposed NESHAP are not anticipated to have a significant economic impact on companies that own and operate the spandex fiber facilities. For more information, consult the economic impact analysis report entitled Economic Impact Analysis: Spandex Production, which is in the docket for the spandex source category.

##### 4. What Are the Nonair Health, Environmental and Energy Impacts?

We believe that there would not be significant adverse environmental or energy impacts associated with the proposed NESHAP for the Spandex Production source category. The industry's baseline level of control is high, and the proposed NESHAP are currently being achieved for the emission point types. Environmental

impacts from the application of the control or recovery devices proposed for the Spandex Production source category are also expected to be minimal for secondary air pollutants. In general, we determine impacts relative to the baseline that is set at the level of control in absence of the proposed NESHAP.

There is no incremental increase in emissions related to water pollution or solid waste as a result of today's proposed NESHAP.

**VI. Administrative Requirements**

**A. Executive Order 12866: Regulatory Planning and Review**

Under Executive Order 12866 (58 FR 51735, October 4, 1993), we must determine whether a proposed regulatory action is "significant" and therefore subject to Office of Management and Budget (OMB) review and the requirements of the Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may:

- (1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- (2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- (3) Materially alter the budgetary impact of entitlements, grants, user fees,

or loan programs or the rights and obligations of recipients thereof; or (4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined that the proposed NESHAP are not a "significant regulatory action" under the terms of Executive Order 12866 and are, therefore, not subject to OMB review.

**B. Paperwork Reduction Act**

The information collection requirements in the proposed NESHAP have been submitted for approval to the OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* An ICR document has been prepared by EPA (ICR No. 1983.01) and a copy may be obtained from Sandy Farmer by mail at the Office of Environmental Information, Collection Strategies Division (2822), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, by e-mail at "farmer.sandy@epa.gov," or by calling (202) 260-2740. A copy may also be downloaded from the internet at "http://www.epa.gov/icr."

Information is required to ensure compliance with the proposed NESHAP. If the relevant information were collected less frequently, EPA would not be reasonably assured that a source is in compliance with the proposed NESHAP. In addition, EPA's authority to take administrative action would be reduced significantly.

The proposed NESHAP would require owners or operators of affected sources to retain records for a period of 5 years. The 5 year retention period is consistent with the provisions of the General Provisions of 40 CFR part 63 and with the 5 year record retention requirement in the operating permit program under title V of the CAA.

The recordkeeping and reporting requirements of the proposed NESHAP are specifically authorized by section 114 of the CAA (42 U.S.C. 7414). All information submitted to us for which a claim of confidentiality is made will be safeguarded according to our policies in 40 CFR part 2, subpart B, "Confidentiality of Business Information."

The EPA expects the proposed NESHAP to affect a total of 75 facilities over the first 3 years. The EPA assumes that no new facilities will become subject to the proposed NESHAP during each of the first 3 years. The EPA expects 75 existing facilities to be affected by the proposed NESHAP, and these existing facilities will begin complying in the third year.

The estimated average annual burden for the first 3 years after promulgation of the NESHAP for the industries and the implementing agency is outlined below. You can find the details of this information collection in the "Standard Form 83 Supporting Statement for ICR No. 1983.01," in Docket No. A-97-17.

Affected entity	Total hours	Labor costs (10 <sup>3</sup> \$)	Capital costs (10 <sup>3</sup> \$)	Operating and maintenance costs (10 <sup>3</sup> \$)	Total costs (10 <sup>3</sup> \$)
Industry .....	33,926	1,510	4,901	16	6,427
Implementing agency .....	3,465	117	0	0	117

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

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. Control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

Comments are requested on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques. Send comments on the ICR to the Director, Office of Environmental Information, Collection Strategies Division (2822), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC 20460; and to the Office of

Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, marked "Attention: Desk Officer for EPA." Include the ICR number in any correspondence. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after December 6, 2000, a comment to OMB is best assured of having its full effect if OMB receives it by January 5, 2001. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

**C. Executive Order 13132, Federalism**

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure

“meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” is defined in the Executive Order to include regulations that 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.” Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed rule. The EPA also may not issue a regulation that has federalism implications and that preempts State law unless the Agency consults with State and local officials early in the process of developing the proposed rule.

If EPA complies by consulting, Executive Order 13132 requires EPA to provide to OMB, in a separately identified section of the preamble to the rule, a federalism summary impact statement (FSIS). The FSIS must include a description of the extent of EPA’s prior consultation with State and local officials, a summary of the nature of their concerns and the Agency’s position supporting the need to issue the regulation, and a statement of the extent to which the concerns of State and local officials have been met. Also, when EPA transmits a draft final rule with federalism implications to OMB for review pursuant to Executive Order 12866, EPA must include a certification from the Agency’s Federalism Official stating that EPA has met the requirements of Executive Order 13132 in a meaningful and timely manner.

The proposed NESHAP 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. No facilities subject to the proposed NESHAP are owned by State or local governments. Therefore, State and local governments will not have any direct compliance costs resulting from the proposed NESHAP. Furthermore, EPA is directed to develop the proposed NESHAP by section 112 of the CAA. Thus, the requirements of section 6 of the

Executive Order do not apply to the proposed NESHAP.

#### *D. Executive Order 13084, Consultation and Coordination With Indian Tribal Governments*

Under Executive Order 13084, we may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments, or we consult with those governments. If we comply by consulting, we are required by Executive Order 13084 to provide to the OMB in a separately identified section of the preamble to the rule, a description of the extent of our prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires us to develop an effective process permitting elected officials and other representatives of Indian tribal governments “to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities.”

Today’s proposed NESHAP do not significantly or uniquely affect the communities of Indian tribal governments. No tribal governments are believed to be affected by the proposed NESHAP. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to the proposed NESHAP.

#### *E. Unfunded Mandates Reform Act of 1995*

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, we must generally prepare a written statement, including a cost-benefit analysis, for proposed and final rules with “Federal mandates” that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any 1 year. Before promulgating a rule for which a written statement is needed, section 205 of the UMRA generally requires us to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost effective, or least

burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows us to adopt an alternative other than the least costly, most cost effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before we establish any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of our regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

We have determined that the proposed NESHAP do not contain a Federal mandate that may result in expenditures of \$100 million or more by State, local, and tribal governments, in the aggregate, or the private sector in any 1 year. The total cost to the private sector is approximately \$22.2 million per year. The proposed NESHAP contain no mandates affecting State, local, or tribal governments. Thus, today’s proposed NESHAP are not subject to the requirements of sections 202 and 205 of the UMRA.

We have determined that the proposed NESHAP contain no regulatory requirements that might significantly or uniquely affect small governments because they contain no requirements that apply to such governments or impose obligations upon them.

#### *F. Regulatory Flexibility Act (RFA), as Amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601, et seq.*

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 today’s proposed rule on small entities, small entity is defined as: (1) A



small business whose parent company has fewer than 1000 employees (500 for the Carbon Black source category); (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 today's proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This proposed rule will not impose any requirements on small entities. There are no small entities affected by this proposed rule.

#### *G. National Technology Transfer and Advancement Act*

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Pub. L. 104-113) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in their regulatory and procurement activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, business practices) developed or adopted by one or more voluntary consensus bodies. The NTTAA directs EPA to provide Congress, through annual reports to OMB, with explanations when an agency does not use available and applicable voluntary consensus standards.

The proposed NESHAP involve technical standards. The EPA proposes to use EPA Methods 1, 1a, 2, 2a, 2c, 2d, 2f, 2g, 3, 3a, 3b, 4, 18, 25, 25a, 26, 26a, 316, and 320. Consistent with the NTTAA, the EPA conducted searches to identify voluntary consensus standards in addition to these EPA methods. One voluntary consensus standard was identified as applicable and EPA proposes to use it in the proposed NESHAP.

The American Society for Testing and Materials (ASTM) consensus standard, ASTM D6420-99, Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry (GC/MS), is appropriate in the cases described below for inclusion in the proposed NESHAP in addition to EPA Methods. Similar to EPA's performance-based Method 18, ASTM D6420-99 is also a performance-based method for measurement of gaseous organic compounds. However, ASTM D6420-99

was written to support the specific use of highly portable and automated GC/MS. While offering advantages over the traditional Method 18, the ASTM method does allow some less stringent criteria for accepting GC/MS results than required by Method 18. Therefore, ASTM D6420-99 is a suitable alternative to Method 18 where: (1) The target compounds are those listed in Section 1.1 of ASTM D6420-99, and (2) the target concentration is between 150 parts per billion by volume and 100 ppmv.

For target compounds not listed in Table 1.1 of ASTM D6420-99, but potentially detected by mass spectrometry, the regulation specifies that the additional system continuing calibration check after each run, as detailed in Section 10.5.3 of the ASTM method, must be followed, met, documented, and submitted with the data report even if there is no moisture condenser used or the compound is not considered water soluble. For target compounds not listed in Table 1.1 of ASTM D6420-99 and not amenable to detection by mass spectrometry, ASTM D6420-99 does not apply.

The EPA proposes to incorporate by reference ASTM 6420-99 into 40 CFR 63.14 for application to subpart SS of part 63. The EPA will also cite Method 18 as a GC option in addition to ASTM D6420-99. This will allow the continued use of other GC configurations.

For EPA Methods 1, 1a, 2, 2a, 2c, 2d, 2f, 2g, 3, 3a, 3b, 4, 25, 25a, 26, 26a, 316, and 320, no applicable voluntary consensus standards were found at this time. The search and review results have been documented and are placed in the Generic MACT docket (Docket No. A-97-17).

The EPA requests comment on compliance demonstration requirements proposed today and specifically invites the public to identify potentially applicable voluntary consensus standards. Comments should explain why the proposed NESHAP should adopt these voluntary consensus standards in lieu of EPA's standards. Emission test methods and performance specifications submitted for evaluation should be accompanied with a basis for the recommendation, including method validation data and the procedure used to validate the candidate method (if a method other than Method 301 of 40 CFR part 63, appendix A, is used).

#### *H. Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks*

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that:

(1) Is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on 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 proposal is not subject to Executive Order 13045 because it is based on technology performance and not on health or safety risks. Additionally, the proposed NESHAP are not economically significant as defined by Executive Order 12866.

#### **List of Subjects in 40 CFR Part 63**

Environmental protection, Air pollution control, Hazardous air pollutants, Reporting and recordkeeping requirements, Volatile organic compounds.

Dated: November 3, 2000.

**Carol M. Browner,**  
*Administrator.*

For the reasons set out in the preamble, title 40, chapter I, part 63 of the Code of Federal Regulations is proposed to be amended as follows:

#### **PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR AFFECTED SOURCE CATEGORIES**

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

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

2. Part 63 is proposed to be amended by adding a new subpart XX to read as follows:

#### **Subpart XX—National Emission Standards for Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste**

Sec.

##### **Introduction**

63.1080 What does this subpart do?  
63.1081 When must I comply with the requirements of this subpart?

##### **Applicability for Heat Exchange Systems**

63.1082 Does this subpart apply to my heat exchange system?

63.1083 What heat exchange systems are exempt from the requirements of this subpart?

#### Heat Exchange System Requirements

63.1084 What are the general requirements for heat exchange systems?

#### Monitoring Requirements for Heat Exchange Systems

63.1085 How must I monitor for leaks to cooling water?

63.1086 Where must I monitor for leaks to cooling water?

#### Repair Requirements for Heat Exchange Systems

63.1087 What actions must I take if a leak is detected?

63.1088 In what situations may I delay leak repair, and what actions must I take for delay of repair?

#### Recordkeeping and Reporting Requirements for Heat Exchange Systems

63.1089 What records must I keep?

63.1090 What reports must I submit?

#### Background for Waste Requirements

63.1091 What do the waste requirements do?

63.1092 What are the major differences between the requirements of 40 CFR part 61, subpart FF, and the waste requirements for ethylene production sources?

#### Applicability for Waste Requirements

63.1093 Does this subpart apply to my waste streams?

63.1094 What waste streams are exempt from the requirements of this subpart?

#### Waste Requirements

63.1095 What specific requirements must I comply with?

63.1096 What requirements must I comply with if I transfer waste offsite?

#### Definitions for Waste Requirements

63.1097 What definitions do I need to know?

#### Implementation and Enforcement

63.1098 Who implements and enforces this subpart?

#### Tables to Subpart XX

Table 1 to Subpart XX—Hazardous Air Pollutants

Table 2 to Subpart XX—Specific Differences in Requirements of this subpart and 40 CFR Part 61, Subpart FF

Table 3 to Subpart XX—Sections of 40 CFR Part 61, Subpart FF, that are not Included in the Requirements of this Subpart

#### Introduction

##### § 63.1080 What does this subpart do?

This subpart establishes requirements for controlling emissions of hazardous air pollutants (HAP) from heat exchange systems and waste streams at new and existing ethylene manufacturing process units.

##### § 63.1081 When must I comply with the requirements of this subpart?

You must comply with the requirements of this subpart according to the schedule specified in § 63.1102(a).

#### Applicability for Heat Exchange Systems

##### § 63.1082 Does this subpart apply to my heat exchange system?

The provisions of this subpart apply to your heat exchange system if you own or operate an ethylene manufacturing process unit expressly referenced to this subpart XX from subpart YY of this part.

##### § 63.1083 What heat exchange systems are exempt from the requirements of this subpart?

Your heat exchange system is exempt from the requirements in §§ 63.1084 and 63.1085 if it meets at least one of the criteria in paragraphs (a) through (f) of this section.

(a) Your heat exchange system operates with the minimum pressure on the cooling water side at least 35 kilopascals greater than the maximum pressure on the process side.

(b) Your heat exchange system contains an intervening cooling fluid, containing less than 5 percent by weight of HAP, between the process and the cooling water. This intervening fluid must serve to isolate the cooling water from the process fluid and must not be sent through a cooling tower or discharged. For purposes of this section, discharge does not include emptying for maintenance purposes.

(c) The once-through heat exchange system is subject to a National Pollution Discharge Elimination System (NPDES) permit with an allowable discharge limit of 1 part per million by weight (ppmw) or less above influent concentration or 10 percent or less above influent concentration, whichever is greater.

(d) Your once-through heat exchange system is subject to a NPDES permit that meets the conditions in paragraphs (d)(1) through (4) of this section.

(1) The permit requires monitoring of a parameter or condition to detect a leak of process fluids to cooling water.

(2) The permit specifies or includes the normal range of the parameter or condition.

(3) The permit requires monthly or more frequent monitoring for the parameters selected as leak indicators.

(4) The permit requires you to report and correct leaks to the cooling water when the parameter or condition exceeds the normal range.

(e) Your recirculating heat exchange system cools process fluids that contain less than 5 percent by weight of HAP.

(f) The once-through heat exchange system cools process fluids that contain less than 5 percent by weight of HAP.

#### Heat Exchange System Requirements

##### § 63.1084 What are the general requirements for heat exchange systems?

Unless you meet one of the requirements for exemptions in § 63.1083, you must meet the requirements in paragraphs (a) through (d) of this section.

(a) Monitor the cooling water for the presence of substances that indicate a leak according to §§ 63.1085 and 63.1086.

(b) If you detect a leak, repair it according to § 63.1087 unless repair is delayed according to § 63.1088.

(c) Keep the records specified in § 63.1089.

(d) Submit the reports specified in § 63.1090.

#### Monitoring Requirements for Heat Exchange Systems

##### § 63.1085 How must I monitor for leaks to cooling water?

You must monitor for leaks to cooling water according to the requirements in paragraphs (a) through (e) of this section.

(a) Monitor the cooling water for HAP (either in total or speciated) or other representative substances (*e.g.*, total organic carbon or volatile organic compounds (VOC)) that indicate the presence of a leak in the heat exchange system.

(b) Monitor the cooling water monthly for heat exchange systems at existing sources; weekly for heat exchange systems at new sources.

(c) Determine the concentration of the monitored substance in the cooling water using any method listed in 40 CFR part 136, as long as the method is sensitive to concentrations as low as 10 ppmw. Use the same method for both entrance and exit samples. Alternative methods may be used upon approval by the U.S. Environmental Protection Agency (EPA) Administrator.

(d) Take a minimum of three sets of samples at each entrance and exit as defined in § 63.1086(a).

(e) Calculate the average entrance and exit concentrations, correcting for the addition of make-up water and evaporative losses, if applicable. Using a one-sided statistical procedure at the 0.05 level of significance, if the exit mean concentration is at least 1 ppmw or 10 percent of the entrance mean, whichever is greater, you have detected a leak.

**§ 63.1086 Where must I monitor for leaks to cooling water?**

You must collect samples at the entrance and exit of each nondirect-contact heat exchanger in the ethylene manufacturing process unit used to cool fluids containing 5 percent by weight organic HAP (or other mentioned substances) or greater.

**Repair Requirements for Heat Exchange Systems****§ 63.1087 What actions must I take if a leak is detected?**

If a leak is detected, you must comply with the requirements in paragraphs (a) and (b) of this section unless repair is delayed according to § 63.1088.

(a) Repair the leak as soon as practical but not later than 15 calendar days after you received the results of monitoring tests that indicated a leak. You must repair the leak unless you demonstrate that the results are due to a condition other than a leak.

(b) Once the leak has been repaired, confirm that the heat exchange system has been repaired according to the monitoring requirements in §§ 63.1085 and 63.1086 within 7 calendar days of the repair or startup, whichever is later.

**§ 63.1088 In what situations may I delay leak repair, and what actions must I take for delay of repair?**

You may delay repair of heat exchange systems for which leaks have been detected if the leaking equipment is isolated from the process. You may also delay repair if repair is technically infeasible without a shutdown, and you meet one of the conditions in paragraphs (a) through (c) of this section.

(a) If a shutdown is expected within 15 calendar days of determining delay of repair is necessary, you are not required to have a special shutdown before that planned shutdown.

(b) If a shutdown is not expected within 15 calendar days of determining delay of repair is necessary, you may delay repair if a shutdown for repair would cause greater emissions than the potential emissions from delaying repair until the next shutdown of the process equipment associated with the leaking heat exchanger. You must document the basis for the determination that a shutdown for repair would cause greater emissions than the emissions likely to result from delay of repair. The documentation process must include the activities in paragraphs (b)(1) through (3) of this section.

(1) Specify a schedule for completing the repair as soon as practical.

(2) Calculate the potential emissions from the leaking heat exchanger by

multiplying the concentration of HAP (or other monitored substances) in the cooling water from the leaking heat exchanger by the flowrate of the cooling water from the leaking heat exchanger and by the expected duration of the delay.

(3) Determine emissions from purging and depressurizing the equipment that will result from the unscheduled shutdown for the repair.

(c) If repair is delayed for reasons other than those specified in paragraph (a) or (b) of this section, you may delay repair a maximum of 30 calendar days. You must demonstrate that the necessary parts or personnel were not available.

**Recordkeeping and Reporting Requirements for Heat Exchange Systems****§ 63.1089 What records must I keep?**

You must keep the records in paragraphs (a) through (c) of this section, according to the requirements of § 63.1109(c).

(a) Monitoring data required by § 63.1085 that indicates a leak, the date the leak was detected, or, if applicable, the basis for determining there is no leak.

(b) The dates of efforts to repair leaks.

(c) The method or procedures used to confirm repair of a leak, and the date the repair was confirmed.

(d) Documentation of delay of repair as specified in § 63.1088.

**§ 63.1090 What reports must I submit?**

If you delay repair for your heat exchange system, you must report the delay of repair in the semiannual report required by § 63.1110(e). If the leak remains unrepaired, you must continue to report the delay of repair in semiannual reports until you repair the leak. You must include the information in paragraphs (a) through (e) of this section in the semiannual report.

(a) The fact that a leak was detected, and the date that the leak was detected.

(b) Whether or not the leak has been repaired.

(c) The reasons for delay of repair. If you delayed the repair as provided in § 63.1088(b), documentation of emissions estimates.

(d) If a leak remains unrepaired, the expected date of repair.

(e) If a leak is repaired, the date the leak was successfully repaired.

**Background for Waste Requirements****§ 63.1091 What do the waste requirements do?**

The waste requirements in this subpart require you to comply with

requirements of 40 CFR part 61, subpart FF, National Emission Standards for Benzene Waste Operations. Because the requirements of subpart FF of 40 CFR part 61 regulate benzene emissions and this subpart regulates HAP, there are some differences between the ethylene production waste requirements and those of subpart FF of 40 CFR part 61. Additionally, some compliance options available in subpart FF of 40 CFR part 61 do not apply to ethylene production sources.

**§ 63.1092 What are the major differences between the requirements of 40 CFR part 61, subpart FF, and the waste requirements for ethylene production sources?**

The major differences between the requirements of 40 CFR part 61, subpart FF and the requirements for ethylene production sources are listed in paragraphs (a) through (c) of this section.

(a) The requirements for ethylene production sources apply to all ethylene production sources that are part of a major source. The requirements do not include a provision to exempt sources with a total annual benzene quantity less than 10 megagrams per year, or any similar cutoff, from control requirements.

(b) The requirements for ethylene production sources apply to waste streams containing any of the HAP listed in Table 1 to this subpart, not only waste streams containing benzene.

(c) The requirements for ethylene production sources do not include the compliance options at 40 CFR 61.342(c)(3)(ii), (d) and (e).

**Applicability for Waste Requirements****§ 63.1093 Does this subpart apply to my waste streams?**

The waste stream provisions of this subpart apply to your waste streams if you own or operate an ethylene production facility expressly referenced to this subpart XX from 40 CFR part 63, subpart YY.

**§ 63.1094 What waste streams are exempt from the requirements of this subpart?**

The types of waste described in paragraphs (a) and (b) of this section are exempt from this subpart.

(a) Waste in the form of gases or vapors that is emitted from process fluids.

(b) Waste that is contained in a segregated storm water sewer system.

**Waste Requirements****§ 63.1095 What specific requirements must I comply with?**

For waste containing the HAP listed in Table 1 to this subpart, you must

comply with all of the requirements of 40 CFR part 61, subpart FF, as modified by paragraphs (a) through (c) of this section.

(a) Use the term "HAP" instead of "benzene" everywhere "benzene" appears in 40 CFR part 61, subpart FF, unless Table 2 to this subpart instructs an alternate substitution for a phrase containing "benzene," as discussed in paragraph (b) of this section. For the purposes of the waste requirements of this subpart, HAP means any of the compounds listed in Table 1 to this subpart.

(b) Apply the wording differences listed in Table 2 to this subpart as specified in paragraphs (b)(1) and (2) of this section.

(1) Table 2 to this subpart gives a referenced section of 40 CFR part 61, subpart FF, and a phrase that appears in that section. Instead of the phrase in 40 CFR part 61, subpart FF, use the phrase in the last column of Table 2 to this subpart to produce the requirements for ethylene production sources.

(2) If a section of 40 CFR part 61, subpart FF, references another section of subpart FF, you must comply with the referenced section, except use the wording differences specified in Table 2 to this subpart to produce the requirements for ethylene production sources.

(c) Table 3 to this subpart shows the sections of 40 CFR part 61, subpart FF, that are not included in the waste requirements of this subpart.

**§ 63.1096 What requirements must I comply with if I transfer waste offsite?**

If you elect to transfer waste offsite, you must comply with the requirements in paragraphs (a) through (d) of this section.

(a) Include a notice with the shipment or transport of each waste stream. The notice shall state that the waste stream contains organic HAP that are to be treated in accordance with the provisions of this subpart. When the transport is continuous or ongoing (for example, discharge to a publicly-owned treatment works), the notice shall be submitted to the treatment operator initially and whenever there is a change in the required treatment.

(b) You may not transfer the waste stream unless the transferee has submitted to the EPA a written certification that the transferee will manage and treat any waste stream received from a source subject to the

requirements of this subpart in accordance with the requirements of this subpart. The certifying entity may revoke the written certification by sending a written statement to the EPA and you giving at least 90 days notice that the certifying entity is rescinding acceptance of responsibility for compliance with the regulatory provisions listed in this paragraph (b). Upon expiration of the notice period, you may not transfer the waste stream to the treatment operation.

(c) By providing this written certification to the EPA, the certifying entity accepts responsibility for compliance with the regulatory provisions in paragraph (b) of this section with respect to any shipment of waste covered by the written certification. Failure to abide by any of those provisions with respect to such shipments may result in enforcement action by the EPA against the certifying entity in accordance with the enforcement provisions applicable to violations of those provisions by owners or operators of sources.

(d) Written certifications and revocation statements to the EPA from the transferees of waste shall be signed by the responsible official of the certifying entity, provide the name and address of the certifying entity, and be sent to the appropriate EPA Regional Office at the addresses listed in 40 CFR 63.13. Such written certifications are not transferable by the treater.

**Definitions for Waste Requirements**

**§ 63.1097 What definitions do I need to know?**

(a) Unless defined in paragraph (b) of this section, definitions for terms used in this subpart are provided in the Clean Air Act, § 63.1103(e), or § 61.341, except use the wording differences specified in Table 2 to this subpart to produce the definitions for ethylene production sources.

(b) The following definitions apply to terms used in this subpart:

*Process wastewater* means water which comes in contact with any of the HAP listed in Table 1 to this subpart during manufacturing or processing operations conducted within an ethylene manufacturing process unit. Process wastewater is not organic wastes, process fluids, product tank drawdown, cooling water blowdown, steam trap condensate, or landfill leachate. Process wastewater includes direct-contact cooling water.

**Implementation and Enforcement**

**§ 63.1098 Who implements and enforces this subpart?**

(a) This subpart can be implemented and enforced by the EPA, or a delegated authority such as the applicable State, local, or tribal agency. If the EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. Contact the applicable EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraphs (b)(1) through (5) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(1) Approval of alternatives to the non-opacity emissions standards in §§ 63.1084, 63.1085 and 63.1095, under § 63.6(g). Where these standards reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart.

(2) [Reserved]

(3) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(4) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(5) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

**TABLES TO SUBPART XX**

**TABLE 1 TO SUBPART XX.—HAZARDOUS AIR POLLUTANTS**

Hazardous air pollutant <sup>a</sup>	CAS number <sup>a</sup>
Benzene .....	71432
1,3-Butadiene .....	106990
Cumene .....	98828
Ethyl benzene .....	100414
Hexane .....	110543
Naphthalene .....	91203
Styrene .....	100425
Toluene .....	108883
o-Xylene .....	95476
m-Xylene .....	108383
p-Xylene .....	106423

<sup>a</sup> Includes all isomers of listed pollutant although isomers may have a different CAS number.

TABLE 2 TO SUBPART XX.—SPECIFIC DIFFERENCES IN REQUIREMENTS OF THIS SUBPART AND 40 CFR PART 61, SUBPART FF

To comply with 40 CFR part 63, subpart XX, in * * *	Instead of the phrase:	Use the phrase <sup>a</sup> :
§ 61.341 .....	benzene .....	any HAP.
§ 61.342(c) .....	at which the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr as determined in paragraph (a) of this section.	to which the wastewater requirements of this subpart XX apply.
§ 61.342(c)(1) .....	benzene .....	any HAP.
§ 61.342(c)(2) .....	benzene concentration .....	total HAP concentration.
§ 61.342(c)(3) .....	either paragraph (c)(3)(i) or (ii) of this section .....	paragraph (c)(3)(i) of this section.
§ 61.348(a)(1)(i) .....	level .....	total level.
§ 61.348(b)(2)(i) .....	benzene .....	total HAP.
§ 61.349(a)(2)(i)(A) .....	reduce the organic emissions vented to it by 95 weight percent or greater.	reduce the HAP or total organic compound emissions vented to it by 98 weight percent or greater.
§ 61.349(a)(2)(ii) .....	recover or control the organic emissions vented to it with an efficiency of 95 weight percent or greater, or shall recover or control the benzene emissions vented to it with an efficiency of 98 weight percent or greater.	recover or control the HAP or total organic compound emissions vented to it with an efficiency of 98 weight percent or greater.
§ 61.349(a)(2)(iv)(A) .....	the device shall recover or control the organic emissions vented to it with an efficiency of 95 weight percent or greater, or shall recover or control the benzene emissions vented to it with an efficiency of 98 weight percent or greater.	the device shall recover or control the HAP or total organic compound emissions vented to it with an efficiency of 98 weight percent or greater.
§ 61.349(a)(2)(iv)(B) .....	the control device will achieve an emission control efficiency of either 95 percent or greater for organic compounds or 98 percent or greater for benzene.	the control device will achieve an emission control efficiency of 98 percent or greater for HAP or total organic compounds.
§ 61.354(a)(1) .....	at least once per month by collecting and analyzing one or more samples using the procedures specified in § 61.355(c)(3).	continuously.
§ 61.354(c)(6)(i) .....	either the concentration level of the organic compounds or the concentration level of benzene.	the concentration level of the organic compounds.
§ 61.354(c)(7)(i) .....	either the concentration level of the organic compounds or the benzene concentration level.	the concentration level of the organic compounds.
§ 61.354(c)(8) .....	either the concentration level of the organic compounds or the benzene concentration level.	the concentration level of the organic compounds.
§ 61.354(d) .....	either the concentration level of the organic compounds or the concentration level of benzene.	the concentration level of the organic compounds.
§ 61.354(d) .....	either the organic concentration or the benzene concentration.	the organic concentration.
§ 61.355(c)(3)(v) .....	benzene .....	total HAP.
§ 61.355(e)(3) .....	benzene .....	total HAP.
§ 61.355(e)(4) .....	benzene .....	total HAP.
§ 61.355(f)(3) .....	benzene .....	total HAP.
§ 61.355(f)(4)(iii) .....	C=Concentration of benzene .....	C=Sum of concentrations of HAP measured in the exhaust, ppmv.
§ 61.355(f)(4)(iii) .....	K=Conversion factor=3.24 kg/m <sup>31</sup> for benzene .....	K=Weighted average density of HAP at standard conditions, kg/m <sup>3</sup> .
§ 61.355(g) .....	benzene concentration .....	total HAP concentration.
§ 61.355(i) .....	either the organic reduction efficiency requirement or the benzene reduction efficiency requirement specified under § 61.349(a)(2).	the HAP or total organic compound reduction efficiency specified under § 61.349(a)(2).
§ 61.355(i)(3)(iii) .....	benzene concentration .....	concentration of HAP i.
§ 61.355(i)(3)(iii) .....	molecular weight of benzene .....	molecular weight of HAP i.
§ 61.355(i)(3)(iii) .....	number of organic compounds in the vent stream .....	number of organic compounds or HAP in the vent stream.
§ 61.355(i)(4) .....	benzene .....	total HAP.
§ 61.356(b)(1) .....	waste stream identification, water content, whether or not the waste stream is a process wastewater stream, annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity.	waste stream identification, whether or not the waste stream is a process wastewater stream, range of HAP concentrations, and annual average flow-weighted HAP concentrations.
§ 61.356(j)(8) .....	organics or concentration of benzene .....	organics.
§ 61.356(j)(8) .....	organics or the concentration of benzene .....	organics.
§ 61.356(j)(9) .....	organics or the concentration of benzene .....	organics.
§ 61.357(a) .....	within 90 days after January 7, 1993 .....	as part of the initial notification report required in paragraph (c) of § 63.1110.
§ 61.357(a) .....	§ 61.342 .....	40 CFR part 63, subpart XX.
§ 61.357(a) .....	the report shall include the following information: .....	the report shall include the information in paragraphs (a)(2) and (a)(3) except (a)(3)(i) of this section.

TABLE 2 TO SUBPART XX.—SPECIFIC DIFFERENCES IN REQUIREMENTS OF THIS SUBPART AND 40 CFR PART 61, SUBPART FF—Continued

To comply with 40 CFR part 63, subpart XX, in * * *	Instead of the phrase:	Use the phrase <sup>a</sup> :
§ 61.357(a)(3)(iii) .....	Annual waste quantity for the waste stream .....	If the stream is managed or treated in an exempt unit according to § 61.348(b), annual waste quantity for the waste stream.
§ 61.357(a)(4) .....	paragraphs (a)(1), (2), and (3) .....	paragraphs (a)(2) and (a)(3) except (a)(3)(i) of this section.
§ 61.357(d) .....	if the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr, then the owner or operator.	the owner or operator to which the wastewater requirements of 40 CFR part 63, subpart XX apply.
§ 61.357(d)(1) .....	within 90 days after January 7, 1993 .....	with the Notification of Compliance Status report required by paragraph (d) of § 63.1110.
§ 61.357(d)(2) .....	paragraphs (a)(1) through (3) of this section .....	paragraphs (a)(2) and (a)(3) except (a)(3)(i) of this section.
§ 61.357(d)(7)(iii) .....	concentration of benzene .....	total concentration of HAP.

<sup>a</sup>For the purpose of this table and the waste requirements of this subpart, HAP means any of the compounds listed in Table 1 to this subpart.

TABLE 3 TO SUBPART XX.—SECTIONS OF 40 CFR PART 61, SUBPART FF, THAT ARE NOT INCLUDED IN THE REQUIREMENTS FOR THIS SUBPART

Section	Paragraphs
61.340 .....	all.
61.342 .....	(a), (b), (c)(3)(ii), (d), (e), (f).
61.348 .....	(d)(3), (d)(4).
61.355 .....	(a), (j), (k).
61.356 .....	(b)(2)(ii), (b)(3) through (5).
61.357 .....	(a)(1), (a)(3)(i), (b), (c), (d)(3) through (5).

(i) If a flow indicator is used, take a reading at least once every 15 minutes.  
 (ii) If the bypass line valve is secured in the non-diverting position, 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 line.

4. Section 63.992 is added to read as follows:

**§ 63.992 Implementation and enforcement.**

(a) This subpart can be implemented and enforced by the EPA, or a delegated authority such as the applicable State, local, or tribal agency. If the EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. Contact the applicable EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraphs (b)(1) through (5) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(1) Approval of alternatives to the non-opacity emissions standards in §§ 63.983(a) and (d), 63.984, 63.685(a), 63.986(a), 63.987(a), 63.988(a), 63.990(a), 63.993(a), 63.994(a), and 63.995(a) under § 63.6(g). Where these standards reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart.

(2) [Reserved]

(3) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(4) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(5) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

5. Section 63.996 is amended by adding paragraphs (c)(7) through (10) as follows:

**§ 63.996 General monitoring requirements for control and recovery devices.**

\* \* \* \* \*

(c) \* \* \*

(7) For each CPMS, the owner or operator must meet the requirements in paragraphs (c)(7)(i) through (iii) of this section.

(i) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period.

(ii) To calculate a valid hourly average, there must be at least four equally spaced values for that hour, excluding data collected during the periods described in paragraph (c)(5) of this section.

(iii) Calculate a daily average using all of the valid hourly averages for each day.

(8) For each temperature monitoring device, meet the requirements in paragraphs (c)(8)(i) through (viii) of this section.

(i) Locate the temperature sensor in a position that provides a representative temperature.

(ii) For a noncryogenic temperature range, use a temperature sensor with a minimum tolerance of 2.2 °C or 0.75 percent of the temperature value, whichever is larger.

(iii) For a cryogenic temperature range, use a temperature sensor with a minimum tolerance of 2.2 °C or 2

**Subpart SS—[Amended]**

3. Section 63.983 is amended by:  
 a. Revising paragraphs (a)(3)(i) and (ii);  
 b. Revising the heading for paragraph (b); and  
 c. Adding paragraph (b)(4).  
 The revisions and addition read as follows:

**§ 63.983 Closed vent systems.**

\* \* \* \* \*

(a) \* \* \*

(3) \* \* \*

(i) Properly install, maintain, and operate a flow indicator that is capable of taking periodic readings. Records shall be generated as specified in § 63.998(d)(1)(ii)(A). The flow indicator shall be installed at the entrance to any bypass line.

(ii) Secure the bypass line valve in the non-diverting position with a car-seal or a lock-and-key type configuration. Records shall be generated as specified in § 63.998(d)(1)(ii)(B).

\* \* \* \* \*

(b) *Closed vent system inspection and monitoring requirements.* \* \* \*

(4) For each bypass line, the owner or operator shall comply with paragraph (b)(4)(i) or (ii) of this section.

percent of the temperature value, whichever is larger.

(iv) Shield the temperature sensor system from electromagnetic interference and chemical contaminants.

(v) If a chart recorder is used, it must have a sensitivity in the minor division of at least 11 °C.

(vi) Perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owners manual. Following the electronic calibration, conduct a temperature sensor validation check in which a second or redundant temperature sensor placed nearby the process temperature sensor must yield a reading within 16.7 °C of the process temperature sensor's reading.

(vii) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specified maximum operating temperature range or install a new temperature sensor.

(viii) At least monthly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion.

(9) For each pressure measurement device, the owner or operator must meet the requirements in paragraphs (c)(9)(i) through (vii) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Use a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1 percent of the pressure range.

(iv) Check pressure tap pluggage daily.

(v) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(vi) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor.

(vii) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(10) For each pH measurement device, the owner or operator must meet the requirements in paragraphs (c)(10)(i) through (iv) of this section.

(i) Locate the pH sensor in a position that provides a representative measurement of pH.

(ii) Ensure the sample is properly mixed and representative of the fluid to be measured.

(iii) Check the pH meter's calibration on at least two points every 8 hours of process operation.

(iv) At least monthly, inspect all components for integrity and all electrical connections for continuity.

\* \* \* \* \*

6. Section 63.997 is amended by:

a. Revising paragraph (e)(2)(ii);

b. Revising paragraph (e)(2)(iii) introductory text;

c. Revising paragraph (e)(2)(iii)(D);

d. Adding paragraph (e)(2)(iii)(E);

e. Revising paragraph (e)(2)(iv) introductory text;

f. Removing paragraphs (e)(2)(iv)(B)(2) and (3); and

g. Adding paragraphs (e)(2)(iv)(F) through (K).

The revisions and additions read as follows:

**§ 63.997 Performance test and compliance assessment requirements for control devices.**

\* \* \* \* \*

(e) \* \* \*

(2) \* \* \*

(ii) *Gas volumetric flow rate.* The gas volumetric flow rate shall be determined using Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, as appropriate.

(iii) *Total organic regulated material or TOC concentration.* To determine compliance with a parts per million by volume total organic regulated material or TOC limit, the owner or operator shall use Method 18 or 25A of 40 CFR part 60, appendix A, as applicable. Alternatively, any other method or data that have been validated according to the applicable procedures in Method 301 of appendix A to this part may be used. The procedures specified in paragraphs (e)(2)(iii)(A) through (E) of this section shall be used to calculate parts per million by volume concentration, corrected to 3 percent oxygen if a combustion device is the control device and supplemental combustion air is used to combust the emissions.

\* \* \* \* \*

(D) To measure the total organic regulated material concentration at the outlet of a combustion control device, use Method 18 of 40 CFR part 60, appendix A, or ASTM D6420-99 (incorporated by reference). For a combustion control device, you must first determine which regulated material compounds are present in the inlet gas stream using process knowledge or the screening procedure described in Method 18. In conducting the performance test, analyze samples collected at the outlet of the combustion control device as specified in Method 18

or ASTM D6420-99 for the regulated material compounds present at the inlet of the control device.

(E) To measure the TOC concentration of the outlet vent stream, use Method 25A of 40 CFR part 60, appendix A, according to the procedures in paragraphs (e)(2)(iii)(E)(1) through (4) of this section.

(1) Calibrate the instrument on the predominant regulated material compound.

(2) The test results are acceptable if the response from the high level calibration gas is at least 20 times the standard deviation for the response from the zero calibration gas when the instrument is zeroed on its most sensitive scale.

(3) The span value of the analyzer must be less than 100 parts per million by volume.

(4) Report the results as carbon, calculated according to Equation 25A-1 of Method 25A.

(iv) *Percent reduction calculation.* To determine compliance with a percent reduction requirement, the owner or operator shall use Method 18, 25, or 25A of 40 CFR part 60, appendix A, as applicable. Alternatively, any other method or data that have been validated according to the applicable procedures in Method 301 of appendix A to this part may be used. The procedures specified in paragraphs (e)(2)(iv)(A) through (K) of this section shall be used to calculate percent reduction efficiency.

\* \* \* \* \*

(F) To measure inlet and outlet concentrations of total organic regulated material, use Method 18 of 40 CFR part 60, appendix A, or ASTM D6420-99 (incorporated by reference as specified in § 63.14). In conducting the performance test, collect and analyze samples as specified in Method 18 or ASTM D6420-99. You must collect samples simultaneously at the inlet and outlet of the control device. If the performance test is for a combustion control device, you must first determine which regulated material compounds are present in the inlet gas stream (*i.e.*, uncontrolled emissions) using process knowledge or the screening procedure described in Method 18. Quantify the emissions for the regulated material compounds present in the inlet gas stream for both the inlet and outlet gas streams for the combustion device.

(G) To determine inlet and outlet concentrations of TOC, use Method 25 of 40 CFR part 60, appendix A. Measure the total gaseous non-methane organic (TGNMO) concentration of the inlet and outlet vent streams using the procedures

of Method 25. Use the TGNMO concentration in Equations 4 and 5 of paragraph (e)(2)(iv)(B) of this section.

(H) Method 25A may be used instead of Method 25 to measure inlet and outlet concentrations of TOC if the condition in either paragraph (e)(2)(iv)(H)(1) or (2) of this section is met.

(1) The concentration at the inlet to the control system and the required level of control would result in exhaust TGNMO concentrations of 50 parts per million by volume or less.

(2) Because of the high efficiency of the control device, the anticipated TGNMO concentration of the control device exhaust is 50 parts per million by volume or less, regardless of the inlet concentration.

(I) To measure hydrogen halide and halogen concentrations, use Method 26 in appendix A to 40 CFR part 60. Use a minimum sampling time of 1 hour. Use Method 26A in lieu of Method 26 when measuring emissions at the outlet of a scrubber where the potential for mist carryover exists.

(J) If the uncontrolled or inlet gas stream to the control device contains formaldehyde, you must conduct emissions testing according to paragraph (e)(2)(iv)(J)(1) or (2) of this section.

(1) If you elect to comply with a percent reduction requirement and formaldehyde is the principal regulated material compound (*i.e.*, greater than 50 percent of the regulated material compounds in the stream by volume), you must use Method 316 or 320 of appendix A to this part to measure formaldehyde at the inlet and outlet of the control device. Use the percent reduction in formaldehyde as a surrogate for the percent reduction in total regulated material emissions.

(2) If you elect to comply with an outlet total organic regulated material concentration or TOC concentration limit, and the uncontrolled or inlet gas stream to the control device contains greater than 10 percent (by volume) formaldehyde, you must use Method 316 or 320 of appendix A to this part to separately determine the formaldehyde concentration. Calculate the total organic regulated material concentration or TOC concentration by totaling the formaldehyde emissions measured using Method 316 or 320 and the other regulated material compound emissions measured using Method 18 or 25/25A.

(K) You may use ASTM D6420-99 (incorporated by reference as specified in § 63.14) in lieu of Method 18 of 40 CFR part 60, appendix A, if a minimum of one sample/analysis cycle is completed at least every 15 minutes,

and the condition in paragraph (e)(2)(iv)(K)(1) or (2) of this section is met.

(1) The target compounds are listed in Section 1.1 of ASTM D6420-99, and the target concentration is between 150 parts per billion by volume and 100 parts per million by volume.

(2) The target compounds are not listed in Section 1.1 of ASTM D6420-99, but are potentially detected by mass spectrometry. In this case, an additional system continuing calibration check after each run, as detailed in Section 10.5.3 of ASTM D6420-99, must be followed, documented, and submitted with the performance test report even if you do not use a moisture condenser or the compound is not considered soluble.

\* \* \* \* \*

#### Subpart TT—[Amended]

7. Section 63.1000 is amended by adding paragraph (b) to read as follows:

##### § 63.1000 Applicability.

\* \* \* \* \*

(b) *Implementation and enforcement.* This subpart can be implemented and enforced by the EPA, or a delegated authority such as the applicable State, local, or tribal agency. If the EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. Contact the applicable EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

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

(i) Approval of alternatives to the non-opacity emissions standards in §§ 63.1003 through 63.1015, under § 63.6(g). Where these standards reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart.

(ii) [Reserved]

(iii) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(iv) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(v) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

(2) [Reserved]

#### Subpart UU—[Amended]

8. Section 63.1019 is amended by adding paragraphs (f) and (g) to read as follows:

##### § 63.1019 Applicability.

\* \* \* \* \*

(f) *Implementation and enforcement.* This subpart can be implemented and enforced by the EPA, or a delegated authority such as the applicable State, local, or tribal agency. If the EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. Contact the applicable EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

(g) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraphs (g)(1) through (5) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(1) Approval of alternatives to the non-opacity emissions standards in §§ 63.1022 through 62.1034, under § 63.6(g), and the standards for quality improvement programs in § 63.1035. Where these standards reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart.

(2) [Reserved]

(3) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(4) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(5) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

#### Subpart WW—[Amended]

9. Section 63.1067 is added to read as follows:

##### § 63.1067 Implementation and enforcement.

(a) This subpart can be implemented and enforced by the EPA, or a delegated authority such as the applicable State, local, or tribal agency. If the EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. Contact the applicable EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to



a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraphs (b)(1) through (5) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(1) Approval of alternatives to the non-opacity emissions standards in §§ 63.1062 and 63.1063(a) and (b) for alternative means of emission limitation, under § 63.6(g).

(2) [Reserved]

(3) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(4) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(5) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

**Subpart YY—[Amended]**

10. Section 63.1100 is amended by:

a. Revising the first sentence of paragraph (a);

b. Adding four entries in alphabetical order and two footnotes to Table 1;

c. Revising paragraphs (g)(1)(ii), (g)(2), and (g)(5) and

d. Adding paragraph (g)(6).

The revisions and additions read as follows:

**§ 63.1100 Applicability.**

(a) *General.* This subpart applies to source categories and affected sources specified in § 63.1103(a) through (h).

\* \* \*  
\* \* \* \* \*

TABLE 1 TO § 63.1100(A).—SOURCE CATEGORY MACT<sup>a</sup> APPLICABILITY

Source category	Storage vessels	Process vents	Transfer racks	Equipment leaks	Waste-water streams	Other	Source category MACT requirements
* Carbon Black Production .....	* No .....	* Yes .....	* No .....	* No .....	* No .....	* No .....	* § 63.1103(f)
* Cyanide Chemicals Manufacturing.	* Yes .....	* Yes .....	* Yes .....	* Yes .....	* Yes .....	* No .....	* § 63.1103(g)
* Ethylene Production .....	* Yes .....	* Yes .....	* Yes .....	* Yes .....	* Yes .....	* Yes <sup>c</sup> .....	* § 63.1103(e)
* Spandex Production .....	* Yes .....	* Yes .....	* No .....	* No .....	* No .....	* Yes <sup>d</sup> .....	* § 63.1103(h)

<sup>c</sup> Heat exchange systems as defined in § 63.1103(e)(2).

<sup>d</sup> Fiber spinning lines.

\* \* \* \* \*

(g) \* \* \*

(1) \* \* \*

(ii) After the compliance dates specified in § 63.1102 for an affected source subject to this subpart, a storage vessel that is part of an existing source that must be controlled according to the storage vessel requirements of this subpart, and that must be controlled according to the storage vessel requirements of subpart Ka or Kb of 40 CFR part 60 is required to comply only with the storage vessel requirements of this subpart.

(2) *Overlap of subpart YY with other regulations for process vents.* (i) After the compliance dates specified in § 63.1102 for an affected source subject to this subpart, a process vent that is part of an existing source that must be controlled according to the process vent requirements of this subpart, and that must be controlled according to the process vent requirements of subpart G (the HON) of this part is in compliance with this subpart if it complies with either the process vent requirements of this subpart or subpart G of this part, and the owner or operator has notified the Administrator in the Notification of

Compliance Status report required by § 63.1110(a)(4).

(ii) After the compliance dates specified in § 63.1102 for an affected source subject to this subpart, a process vent that is part of an existing source that must be controlled according to the process vent requirements of this subpart, and that must be controlled according to the process vent requirements of subpart RRR or NNN of 40 CFR part 60 is required to comply only with the process vent requirements of this subpart.

\* \* \* \* \*

(5) *Overlap of subpart YY with other regulations for wastewater for source categories other than ethylene production.* (i) After the compliance dates specified in § 63.1102 for an affected source subject to this subpart, a wastewater stream that is subject to the wastewater requirements of this subpart and the wastewater requirements of subparts F and G of this part (the HON) shall be deemed to be in compliance with the requirements of this subpart if it complies with either set of requirements. In any instance where a source subject to this subpart is collocated with a Synthetic Organic Chemical Manufacturing Industry

(SOCMI) source, and a single wastewater treatment facility treats both Group 1 wastewaters and wastewater residuals from the source subject to this subpart and wastewaters from the SOCMI source, a certification by the treatment facility that they will manage and treat the waste in conformity with the specific control requirements set forth in §§ 63.133 through 63.147 will also be deemed sufficient to satisfy the certification requirements for wastewater treatment under this subpart. This paragraph does not apply to the ethylene production source category.

(ii) After the compliance dates specified in § 63.1102 for an affected source subject to this subpart, a wastewater stream that is subject to control requirements in the Benzene Waste Operations NESHAP (subpart FF of 40 CFR part 61) and this subpart is required to comply with both rules. This paragraph (g)(5)(ii) does not apply to the ethylene production source category.

(6) *Overlap of subpart YY with other regulations for waste for the ethylene production source category.*

(i) After the compliance date specified in § 63.1102, a waste stream that is conveyed, stored, or treated in a

wastewater stream management unit, waste management unit, or wastewater treatment system that receives streams subject to both the control requirements of § 63.1103(e)(2) for ethylene production sources and the provisions of §§ 63.133 through 63.147 shall comply as specified in paragraphs (g)(6)(i)(A) through (C) of this section. Compliance with the provisions of this paragraph (g)(6)(i) shall constitute compliance with the requirements of this subpart for that waste stream.

(A) Comply with the provisions in §§ 63.133 through 63.137 and 63.140 for all equipment used in the storage and conveyance of the waste stream.

(B) Comply with the provisions in §§ 63.1103(e), 63.138, and 63.139 for the treatment and control of the waste stream.

(C) Comply with the provisions in §§ 63.143 through 63.148 for monitoring and inspections of equipment and for recordkeeping and reporting requirements. The owner or operator is not required to comply with the monitoring, recordkeeping, and reporting requirements associated with the treatment and control requirements in §§ 61.355 through 61.357.

(ii) After the compliance date specified in § 63.1102, compliance with § 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (subpart FF of 40 CFR part 61) for waste streams that are subject to both the control requirements of § 63.1103(e)(2) for ethylene production sources and the control requirements of 40 CFR part 61, subpart FF.

11. Section 63.1101 is amended by:

- a. Adding a sentence at the end of the introductory text;
- b. Adding a sentence to the end of the definition of “process vent;”
- c. Revising the definitions of “shutdown” and “total organic compounds.”

The revisions read as follows:

**§ 63.1101 Definitions.**

\* \* \* The definitions in this section do not apply to waste requirements for ethylene production sources.

\* \* \* \* \*

*Process vent* \* \* \* This definition does not apply to ethylene production sources. Ethylene manufacturing process vents are defined in § 63.1103(e)(2).

\* \* \* \* \*

*Shutdown* means the cessation of operation of a regulated source and equipment required or used to comply with this subpart, or the emptying and degassing of a storage vessel. For the purposes of this subpart, shutdown includes, but is not limited to, periodic maintenance, replacement of equipment, or repair. Shutdown does not include the routine rinsing or washing of equipment in batch operation between batches. Shutdown includes the decoking of ethylene manufacturing process unit furnaces.

\* \* \* \* \*

*Total organic compounds or (TOC)* means the total gaseous organic compounds (minus methane and ethane) in a vent stream, with the concentrations expressed on a carbon basis.

\* \* \* \* \*

12. Section 63.1102 is revised to read as follows:

**§ 63.1102 Compliance Schedule.**

(a) *General requirements.* Affected sources, as defined in § 63.1103(a)(1)(i) for acetyl resins production; § 63.1103(b)(1)(i) for acrylic and monacrylic fiber production; § 63.1103(c)(1)(i) for hydrogen fluoride production; § 63.1103(d)(1)(i) for polycarbonate production; § 63.1103(e)(1)(i) for ethylene production; § 63.1103(f)(1)(i) for carbon black production; § 63.1103(g)(1)(i) for cyanide chemicals manufacturing; or § 63.1103(h)(1)(i) for spandex production shall comply with the appropriate provisions of this subpart and the subparts referenced by this subpart according to the schedule in

paragraph (a)(1) or (2) of this section, as appropriate. Proposal and effective dates are specified in Table 1 to this section.

(1) *Compliance dates for new and reconstructed sources.* (i) The owner or operator of a new or reconstructed affected source that commences construction or reconstruction after the proposal date, and that has an initial startup before the effective date of standards for an affected source, shall comply with this subpart no later than the applicable effective date in Table 1 to this section.

(ii) The owner or operator of a new or reconstructed affected source that has an initial startup after the applicable effective date in Table 1 to § 63.1102 shall comply with this subpart upon startup of the source.

(iii) The owner or operator of an affected source that commences construction or reconstruction after the proposal date, but before the effective date in Table 1 to § 63.1102, shall comply with this subpart no later than the date 3 years after the effective date if the conditions in paragraphs (a)(1)(iii)(A) and (B) of this section are met.

(A) The promulgated standards are more stringent than the proposed standards.

(B) The owner or operator complies with this subpart as proposed during the 3-year period immediately after the effective date of standards for the affected source.

(2) *Compliance dates for existing sources.* (i) The owner or operator of an existing affected source shall comply with the requirements of this subpart within 3 years after the effective date of standards for the affected source.

(ii) The owner or operator of an area source that increases its emissions of (or its potential to emit) HAP such that the source becomes a major source shall be subject to the relevant standards for existing sources under this subpart. Such sources shall comply with the relevant standards within 3 years of becoming a major source.

TABLE 1 TO § 63.1102.—SOURCE CATEGORY PROPOSAL AND EFFECTIVE DATES

Source category	Proposal date	Effective date
1. Acetal Resins Production .....	October 14, 1998 .....	June 29, 1999.
2. Acrylic and Modacrylic Fibers Production .....	October 14, 1998 .....	June 29, 1999.
3. Hydrogen Fluoride Production .....	October 14, 1998 .....	June 29, 1999.
4. Polycarbonate Production .....	October 14, 1998 .....	June 29, 1999.
5. Ethylene Production .....	December 6, 2000 .....	[DATE OF PUBLICATION OF THE FINAL SUBPART IN THE FEDERAL REGISTER].
6. Carbon Black Production .....	December 6, 2000 .....	[DATE OF PUBLICATION OF THE FINAL SUBPART IN THE FEDERAL REGISTER].
7. Cyanide Chemicals Manufacturing .....	December 6, 2000 .....	[DATE OF PUBLICATION OF THE FINAL SUBPART IN THE FEDERAL REGISTER].

TABLE 1 TO § 63.1102.—SOURCE CATEGORY PROPOSAL AND EFFECTIVE DATES—Continued

Source category	Proposal date	Effective date
8. Spandex Production .....	December 6, 2000 .....	[DATE OF PUBLICATION OF THE FINAL SUBPART IN THE FEDERAL REGISTER].

\* \* \* \* \*

13. Section 63.1103 is amended by adding paragraphs (e) through (h), and adding Tables 7 through 10 as follows:

**§ 63.1103 Source category-specific applicability, definitions, and requirements.**

\* \* \* \* \*

(e) *Ethylene production applicability, definitions, and requirements*—(1) *Applicability*.—(i) *Affected source*. For the ethylene production (as defined in paragraph (e)(2) of this section) source category, the affected source shall comprise all emission points listed in paragraphs (e)(1)(i)(A) through (F) of this section that are associated with an ethylene manufacturing process unit located at a major source, as defined in section 112(a) of the Act.

(A) All storage vessels (as defined in § 63.1101) that store liquids containing organic HAP.

(B) All process vents (as defined in paragraph (e)(2) of this section) from continuous unit operations.

(C) All transfer racks (as defined in paragraph (e)(2) of this section) that load HAP-containing material.

(D) Equipment (as defined in § 63.1101) that contains or contacts organic HAP.

(E) All waste streams (as defined in paragraph (e)(2) of this section) associated with the ethylene production process.

(F) All heat exchange systems (as defined in paragraph (e)(2) of this section) associated with the ethylene production process.

(ii) *Exceptions*. The emission points listed in paragraphs (e)(1)(ii)(A) through (I) of this section are in the ethylene production source category but are not subject to the requirements of paragraph (e)(3) of this section.

(A) Equipment that is located within an ethylene manufacturing process unit that is subject to this subpart but does not contain organic HAP.

(B) Stormwater from segregated sewers.

(C) Water from fire-fighting and deluge systems in segregated sewers.

(D) Spills.

(E) Water from safety showers.

(F) Water from testing of deluge systems.

(G) Vessels storing organic liquids that contain organic HAP as impurities.

(H) Transfer racks, loading arms, or loading hoses that only transfer liquids containing organic HAP as impurities.

(I) Transfer racks, loading arms, or loading hoses that vapor balance during all transfer operations.

(iii) *Compliance schedule*. The compliance schedule for affected sources as defined in paragraph (e)(1)(i) of this section is specified in § 63.1102.

(2) *Definitions*. *Ethylene manufacturing process vent* means a gas stream containing greater than 0.005 weight-percent and 20 parts per million by volume HAP that is continuously discharged during operation of an ethylene manufacturing process unit, as defined in this section. *Ethylene manufacturing process vents* are gas streams that are discharged to the atmosphere (or the point of entry into a control device, if any) either directly or after passing through one or more recovery devices. *Ethylene manufacturing process vents* do not include relief valve discharges; gaseous streams routed to a fuel gas system; leaks from equipment regulated under this subpart; episodic or nonroutine releases such as those associated with startup, shutdown, and malfunction; and in situ sampling systems (online analyzers).

*Ethylene manufacturing process unit* means a process unit that is specifically utilized for the production of ethylene/propylene, including all separation and purification processes.

*Ethylene production* means the process by which ethylene/propylene is produced as a product or an intermediate by either a pyrolysis process (hydrocarbons subjected to high temperatures in the presence of steam) or separation from a petroleum refining stream. The ethylene production process includes the separation of ethylene/propylene from associated streams such as products made from compounds composed of four carbon atoms (C4), pyrolysis gasoline, and pyrolysis fuel oil. The ethylene production process does not include the manufacture of synthetic organic chemicals such as the production of butadiene from the C4 stream and aromatics from pyrolysis gasoline.

*Heat exchange system* means any cooling tower system or once-through cooling water system (e.g., river or pond water). A heat exchange system can

include an entire recirculating or once-through cooling system.

*Transfer rack* means the collection of loading arms and loading hoses, at a single loading rack, that are associated with an ethylene manufacturing process unit subject to this subpart and are used to fill tank trucks and/or railcars with organic HAP. Transfer rack includes the associated pumps, meters, shutoff valves, relief valves, and other piping and valves. Transfer rack does not include racks, arms, or hoses that contain organic HAP only as impurities; or racks, arms, or hoses that vapor balance during all loading operations.

*Waste* means any material resulting from industrial, commercial, mining, or agricultural operations, or from community activities, that is discarded or is being accumulated, stored, or physically, chemically, thermally, or biologically treated prior to being discarded, recycled, or discharged.

*Waste stream* means the waste generated by a particular process unit, product tank, or waste management unit. The characteristics of the waste stream (e.g., flow rate, HAP concentration, water content) are determined at the point of waste generation. Examples of a waste stream include process wastewater, product tank drawdown, sludge and slop oil removed from waste management units, and landfill leachate.

(3) *Requirements*. Table 7 to this section specifies the ethylene production source category requirements for new and existing sources. The owner or operator must control organic HAP emissions from each affected source emission point by meeting the applicable requirements specified in Table 7 to § 63.1103. An owner or operator must perform the applicability assessment procedures and methods for process vents specified in § 63.1104, excluding paragraphs (d), (g), (h), (i), (j), (l)(1), and (n). An owner or operator must perform the applicability assessment procedures and methods for equipment leaks specified in § 63.1107. General compliance, recordkeeping, and reporting requirements are specified in §§ 63.1108 through 63.1112. Minimization of emissions from startup, shutdown, and malfunctions must be addressed in the startup, shutdown, and malfunction plan required by § 63.1111; the plan must also establish reporting

and recordkeeping of such events.  
Procedures for approval of alternate

means of emission limitations are  
specified in § 63.1113.

TABLE 7 TO § 63.1103.—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE AN ETHYLENE PRODUCTION EXISTING OR NEW AFFECTED SOURCE?

If you own or operate * * *	And if * * *	Then you must * * *
1. A storage vessel (as defined in § 63.1101) that stores liquid containing organic HAP.	The maximum true vapor pressure of total organic HAP is $\geq 3.4$ kilopascals but $< 76.6$ kilopascals and the capacity of the vessel is $\geq 4$ cubic meters but $< 95$ cubic meters.	a. Fill the vessel through a submerged pipe; or b. Comply with the requirements for storage vessels with capacities $\geq 95$ cubic meters.
2. A storage vessel (as defined in § 63.1101) that stores liquid containing organic HAP.	The maximum true vapor pressure of total organic HAP is $\geq 3.4$ kilopascals but $< 76.6$ kilopascals; and the capacity of the vessel is $\geq 95$ cubic meters	a. Comply with the requirements of subpart WW of this part; or b. Reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to any combination of control devices meeting the requirements of subpart SS of this part, as specified in § 63.982(a)(1).
3. A storage vessel (as defined in § 63.1101) that stores liquid containing organic HAP.	The maximum true vapor pressure of total organic HAP is $\geq 76.6$ kilopascals.	Reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to any combination of control devices meeting the requirements of subpart SS of this part, as specified in § 63.982(a)(1).
4. A process vent (as defined in paragraph (e)(2) of this section) from continuous unit operations.	The vent stream has an average flow rate $\geq 0.011$ scmm; and the vent stream has a total organic HAP concentration $\geq 50$ parts per million by volume.	Reduce emissions of organic HAP by 98 weight-percent; or reduce organic HAP or TOC to a concentration of 20 parts per million by volume; whichever is less stringent, by venting emissions through a closed vent system to any combination of control devices meeting the requirements of subpart SS of this part, as specified in § 63.982(a)(2).
5. A transfer rack (as defined in paragraph (e)(2) of this section).	Materials loaded have a true vapor pressure of total organic HAP $\geq 3.4$ kilopascals; and $\geq 76$ cubic meters per day (averaged over any consecutive 30-day period) of HAP-containing material is loaded.	a. Reduce emissions of organic HAP by 98 weight-percent; or reduce organic HAP or TOC to a concentration of 20 parts per million by volume; whichever is less stringent, by venting emissions through a closed vent system to any combination of control devices as specified in § 63.1105; or process piping designed to collect the HAP-containing vapors displaced from tank trucks or railcars during loading and to route it to a process, a fuel gas system, or a vapor balance system, as specified in § 63.1105.
6. Equipment (as defined in § 63.1101) that contains or contacts organic HAP.	The equipment contains or contacts $\geq 5$ weight-percent organic HAP; and the equipment is in service $\geq 300$ hours per year; and the equipment is not in vacuum service .....	Comply with the requirements of subpart UU of this part.
7. Processes that generate process wastewater or maintenance wastewater (as defined in paragraph (e)(2) of this section).	The wastewater contains any of the following HAP: Benzene, cumene, ethyl benzene, hexane, methyl ethyl ketone, naphthalene, phenol, styrene, toluene, o-xylene, m-xylene, p-xylene, or 1,3-butadiene.	Comply with the waste requirements of subpart XX of this part. For ethylene manufacturing process unit waste stream requirements, words have the meanings specified in subpart XX.
8. A heat exchange system (as defined in paragraph (e)(2) of this section).	.....	Comply with the heat exchange system requirements of subpart XX of this part.

(f) *Carbon black production applicability, definitions, and requirements*—(1) *Applicability*—(i) *Affected source*. For the carbon black production source category (as defined in paragraph (f)(2) of this section), the affected source shall include each carbon black production process unit located at a major source, as defined in section 112(a) of the Act. The affected

source shall also include all waste management units, maintenance wastewater, and equipment components that contain or contact HAP that are associated with the carbon black production process unit.

(ii) *Compliance schedule*. The compliance schedule for the carbon black production affected source, as

defined in paragraph (f)(1)(i) of this section, is specified in § 63.1102.

(2) *Definitions*.

*Carbon black production* means the production of carbon black by either the furnace, thermal, acetylene, or lampblack processes.

*Carbon black production process unit* means the equipment assembled and connected by hard-piping or duct work

to process raw materials to manufacture, store, and transport a carbon black product. For the purposes of this subpart, a carbon black production process unit includes reactors and associated operations; associated recovery devices; and any feed, intermediate and product storage vessels, product transfer racks, and connected ducts and piping. A carbon black production process unit includes pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, and control devices or systems.

*Dryer* means a rotary-kiln dryer that is heated externally and is used to dry wet pellets in the wet pelletization process.

*Main unit filter* means the filter that separates the carbon black from the tailgas.

*Miscellaneous process vents* means all process vents associated with a carbon black production process unit other than the main unit filter, process filter, purge filter, and dryer process vents.

*Process filter* means the filter that separates the carbon black from the conveying air.

*Purge filter* means the filter that separates the carbon black from the dryer exhaust.

(3) *Requirements.* Table 8 of this section specifies the carbon black production standards for existing and new sources. Applicability assessment procedures and methods are specified in § 63.1104. An owner or operator of an affected source is not required to perform applicability tests, or other applicability assessment procedures if they opt to comply with the most stringent requirements for an applicable emission point pursuant to this subpart. General compliance, recordkeeping, and reporting requirements are specified in §§ 63.1108 through 63.1112. Procedures for approval of alternative means of emission limitations are specified in § 63.1113.

TABLE 8 TO § 63.1103.—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE A CARBON BLACK PRODUCTION EXISTING OR NEW AFFECTED SOURCE?

If you own or operate * * *	And if * * *	Then you must * * *
A main unit filter process vent .....	The HAP concentration of the emission stream is equal to or greater than 260 parts per million by volume <sup>a</sup> .	a. Reduce emissions of total HAP by using a flare meeting the requirements of subpart SS of this part; or b. Reduce emissions of total HAP by 98 weight-percent or to a concentration of 20 parts per million by volume, whichever is less stringent, by venting emissions through a closed vent system to any combination of control devices meeting the requirements of subpart SS of this part, as specified in § 63.982(a)(2).

<sup>a</sup> The weight-percent organic HAP is determined according to the procedures specified in § 63.1104(e).

(g) *Cyanide chemicals manufacturing applicability, definitions, and requirements—(1) Applicability—(i) Affected source.* For the cyanide chemicals manufacturing source category, the affected source shall include each cyanide chemicals manufacturing process unit located at a major source, as defined in section 112(a) of the Act. The affected source shall also include all waste management units, maintenance wastewater, and equipment (as defined in § 63.1101) that contain or contact cyanide chemicals that are associated with the cyanide chemicals manufacturing process unit.

(ii) *Compliance schedule.* The compliance schedule for the affected source, as defined in paragraph (f)(1)(i) of this section, is specified in § 63.1102.

(2) *Definitions.*

*Andrussow process unit* means a process unit that produces hydrogen cyanide by reacting methane and ammonia in the presence of oxygen over a platinum/rhodium catalyst. An Andrussow process unit begins at the point at which the raw materials are stored and ends at the point at which refined hydrogen cyanide is utilized as a raw material in a downstream process

or is shipped offsite. If raw hydrogen cyanide is reacted with sodium hydroxide to form sodium cyanide, prior to the refining process, the unit operation where sodium cyanide is formed is considered to be part of the Andrussow process unit.

*Blausaurer Methane Anlage (BMA) process unit* means a process unit that produces hydrogen cyanide by reacting methane and ammonia over a platinum catalyst. A BMA process unit begins at the point at which raw materials are stored and ends at the point at which refined hydrogen cyanide is used as a raw material in a downstream process or is shipped offsite. If raw hydrogen cyanide is reacted with sodium hydroxide to form sodium cyanide, prior to the refining process, the unit operation where sodium cyanide is formed is considered to be part of the BMA process unit.

*Byproduct* means a chemical that is produced coincidentally during the production of another chemical.

*Cyanide chemicals manufacturing process unit or CCMPU* means the equipment assembled and connected by hard-piping or duct work to process raw materials to manufacture, store, and

transport a cyanide chemicals product. A cyanide chemicals manufacturing process unit may be any one of the following: an Andrussow process unit, a BMA process unit, a sodium cyanide process unit, or a Sohio hydrogen cyanide process unit. For the purpose of this subpart, a cyanide chemicals manufacturing process unit includes reactors and associated unit operations; associated recovery devices; and any feed, intermediate and product storage vessels, product transfer racks, and connected ducts and piping. A cyanide chemicals manufacturing process unit includes pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, and control devices or systems.

*Cyanide chemicals product* means either hydrogen cyanide or sodium cyanide.

*Dry-end process vent* means a process vent originating from the drum filter or any other unit operation in the dry end of a sodium cyanide manufacturing process unit. For the purposes of this subpart, the dry end of the sodium cyanide process unit begins in the unit

operation where water is removed from the sodium cyanide, usually in the drum filter, and ends when the sodium cyanide is used as a raw material in a downstream process, or is shipped offsite.

*Raw hydrogen cyanide* means hydrogen cyanide that has not been through the refining process. Raw hydrogen cyanide usually has a hydrogen cyanide concentration less than 10 percent.

*Refined hydrogen cyanide* means hydrogen cyanide that has been through the refining process. Refined hydrogen cyanide usually has a hydrogen cyanide concentration greater than 99 percent.

*Refining process* means the collection of equipment in a cyanide chemicals manufacturing processing unit used to concentrate raw hydrogen cyanide from a concentration less than 10 percent to refined hydrogen cyanide at a concentration greater than 99 percent.

*Sodium cyanide process unit* means a process unit that produces sodium cyanide by reacting hydrogen cyanide and sodium hydroxide via the neutralization, or wet, process. A sodium cyanide process unit begins at the unit operation where refined hydrogen cyanide is reacted with sodium hydroxide and ends at the point the solid sodium cyanide product is shipped offsite or used as a raw material in a downstream process. If raw hydrogen cyanide is reacted with

sodium hydroxide to form sodium cyanide prior to the refining process, the unit operation where sodium cyanide is formed is not considered to be part of the sodium cyanide process unit. For this type of process, the sodium cyanide process unit begins at the point that the aqueous sodium cyanide stream leaves the unit operation where the sodium cyanide is formed.

*Sohio hydrogen cyanide process unit* means a process unit that produces hydrogen cyanide as a byproduct of the acrylonitrile production process when acrylonitrile is manufactured using the Sohio process. A Sohio hydrogen cyanide process unit begins at the point the hydrogen cyanide leaves the unit operation where the hydrogen cyanide is separated from the acrylonitrile (usually referred to as the light ends column). The Sohio hydrogen cyanide process unit ends at the point refined hydrogen cyanide is used as a raw material in a downstream process or is shipped offsite. If raw hydrogen cyanide is reacted with sodium hydroxide to form sodium cyanide, prior to the refining process, the unit operation where sodium cyanide is formed is considered to be part of the Sohio hydrogen cyanide process unit.

*Wet-end process vent* means a process vent originating from the reactor, crystallizer, or any other unit operation in the wet end of the sodium cyanide process unit. For the purposes of this

subpart, the wet end of the sodium cyanide process unit begins at the point at which the raw materials are stored and ends just prior to the unit operation where water is removed from the sodium cyanide, usually in the drum filter.

(3) *Requirements.* Table 9 of this section specifies the cyanide chemicals manufacturing standards applicable to existing and new sources. Applicability assessment procedures and methods are specified in § 63.1104. An owner or operator of an affected source is not required to perform applicability tests, or other applicability assessment procedures if they opt to comply with the most stringent requirements for an applicable emission point pursuant to this subpart. General compliance, recordkeeping, and reporting requirements are specified in §§ 63.1108 through 63.1112. Procedures for approval of alternative means of emission limitations are specified in § 63.1113.

(4) *Determination of overall HAP emissions reductions for a process unit.*  
(i) The owner or operator shall determine the overall HAP emissions reductions for process vents in a process unit using Equation 1 of this section. The overall organic HAP emissions reductions shall be determined for all process vents in the process unit.

$$RED_{CCMPU} = \left( \frac{\sum_{i=1}^n (E_{unc,i}) \left( \frac{R_i}{100} \right)}{\sum_{i=1}^n (E_{unc,i}) + \sum_{j=1}^m (E_{unc,j})} \right) * 100 \quad (\text{Eq. 1})$$

Where:

$RED_{CCMPU}$  = Overall HAP emission reduction for the group of process vents in the CCMPU, percent.

$E_{unc,i}$  = Uncontrolled HAP emissions from process vent i that is controlled by using a combustion, recovery, or recapture device, kg/hr.

$n$  = Number of process vents in the process unit that are controlled by using a combustion, recovery, or recapture device.

$R_i$  = Control efficiency of the combustion, recovery, or recapture device used to control HAP emissions from vent i, determined

in accordance with paragraph (g)(4)(ii) of this section.

$E_{unc,j}$  = Uncontrolled HAP emissions from process vent j that is not controlled by using a combustion, recovery, or recapture device, kg/hr.

$m$  = Number of process vents in the process unit that are not controlled by using a combustion, recovery, or recapture device.

(ii) The control efficiency,  $R_i$ , shall be assigned as specified in paragraph (g)(4)(i)(A) or (B) of this section.

(A) If the process vent is controlled using a flare in accordance with the provisions of § 63.987, or a combustion

device in accordance with the provisions of § 63.988(b)(2), for which a performance test has not been conducted, the control efficiency shall be assumed to be 98 percent.

(B) If the process vent is controlled using a combustion, recovery, or recapture device for which a performance test has been conducted in accordance with the provisions of § 63.997, the control efficiency shall be the efficiency determined from the performance test.

TABLE 9 TO § 63.1103.—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE A CYANIDE CHEMICALS MANUFACTURING EXISTING OR NEW AFFECTED SOURCE?

If you own or operate * * *	And if * * *	Then you must * * *
1. A storage vessel .....	The storage vessel contains refined hydrogen cyanide.	a. Reduce emissions of hydrogen cyanide by using a flare meeting the requirements of § 63.982(b); or b. Reduce emissions of hydrogen cyanide by 98 weight-percent by venting emissions through a closed vent system to any combination of control devices meeting the requirements of § 63.982(c)(1) or (d).
2. One or more process vents from continuous unit operations in an Andrusow or BMA process unit.	.....	During all periods, except periods of startup, shutdown, and malfunction, either: a. Reduce overall emissions of total HAP from the collection of process vents from continuous unit operations in the process unit by 99 weight-percent in accordance with paragraph (g)(4) of this section. Any control device used to reduce emissions from one or more process vents from continuous unit operations in the process unit must meet the applicable requirements of § 63.982(a)(2); or b. Reduce emissions of total HAP from each process vent from a continuous unit operation in the process unit by 99 weight-percent or a concentration of 20 parts per million by volume, by venting emissions through a closed vent system to any combination of control devices meeting the requirements of § 63.982(c)(2) or (d).
3. One or more process vents from continuous unit operations in an Andrusow or BMA process unit.	.....	During periods of startup, shutdown, and malfunction, either: a. Reduce emissions of total HAP from each process vent from a continuous unit operation in the process unit by using a flare meeting the requirements of § 63.982(b); or b. Reduce emissions of total HAP from each process vent from a continuous unit operation in the process unit by 98 weight-percent or a concentration of 20 parts per million by volume, by venting emissions through a closed vent system to any combination of control devices meeting the requirements of § 63.982(c)(2) or (d).
4. One or more process vents from continuous unit operations in a Sohio hydrogen cyanide process unit.	.....	a. Reduce overall emissions of hydrogen cyanide from the collection of process vents from continuous unit operations in the process unit by 98 weight-percent in accordance with paragraph (g)(4) of this section. Any control device used to reduce emissions from one or more process vents from continuous unit operations in the process unit must meet the applicable requirements specified in § 63.982(a)(2); or b. Reduce emissions of hydrogen cyanide from each process vent from a continuous unit operation in the process unit by using a flare meeting the requirements of § 63.982(b); or c. Reduce emissions of hydrogen cyanide from each process vent from a continuous unit operation in the process unit by 98 weight-percent or a concentration of 20 parts per million by volume, by venting emissions through a closed vent system to any combination of control devices meeting the requirements of § 63.982(c)(2) or (d).

TABLE 9 TO § 63.1103.—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE A CYANIDE CHEMICALS MANUFACTURING EXISTING OR NEW AFFECTED SOURCE?—Continued

If you own or operate * * *	And if * * *	Then you must * * *
5. One or more wet-end process vents, as defined in paragraph (g)(2) of this section, in a sodium cyanide process unit.	.....	a. Reduce overall emissions of total HAP from the collection of process vents from continuous unit operations in the process unit by 98 weight-percent in accordance with paragraph (g)(4) of this section. Any control device used to reduce emissions from one or more process vents from continuous unit operations in the process unit must meet the applicable requirements § 63.982(a)(2); or b. Reduce emissions of total HAP from each wet-end process vent in the process unit by using a flare meeting the requirements of § 63.982(b); or c. Reduce emissions of total HAP from each wet-end process vent in the process unit by 98 weight-percent or a concentration of 20 parts per million by volume, by venting emissions through a closed vent system to any combination of control devices meeting the requirements of § 63.982(c)(2) or (d).
6. One or more dry-end process vents, as defined in paragraph (g)(2) of this section, in a sodium cyanide process unit.	.....	a. Reduce overall emissions of sodium cyanide from the collection of process vents from continuous unit operations in the process unit by 98 weight-percent in accordance with paragraph (g)(4) of this section. Any control device used to reduce emissions from one or more process vents from continuous unit operations in the process unit must meet the applicable requirements of § 63.982(a)(2); or b. Reduce emissions of sodium cyanide from each dry-end process vent in the process unit by 98 weight-percent by venting emissions through a closed vent system to any combination of control devices meeting the requirements of § 63.982(c)(2) or (d).
7. A transfer rack .....	The transfer rack is used to load refined hydrogen cyanide into tank trucks and/or rail cars.	a. Reduce emissions of hydrogen cyanide by using a flare meeting the requirements of § 63.982(b); or b. Reduce emissions of hydrogen cyanide by 98 weight-percent or a concentration of 20 parts per million by volume, whichever is less stringent, by venting emissions through a closed vent system to any combination of control devices meeting the requirements specified in § 63.982(c)(1), (c)(2), or (d).
8. A new cyanide chemicals manufacturing process unit that generates process wastewater.	The process wastewater is from HCN purification, ammonia purification, or flare blow-down.	Achieve a combined removal and control of HAP from the wastewater of 93 weight-percent.
9. A cyanide chemicals manufacturing process unit that generates maintenance wastewater.	The maintenance wastewater contains hydrogen cyanide or acetonitrile.	Comply with the requirements of § 63.1106(b).
10. An item of equipment listed in § 63.1106(c)(1).	The item of equipment meets the criteria specified in § 63.1106(c)(1) through (3) and either (c)(4)(i) or (ii)..	Comply with the requirements in Table 35 of subpart G of this part.
11. Equipment, as defined under § 63.1101 .....	The equipment contains or contacts hydrogen cyanide and operates equal to or greater than 300 hours per year.	Comply with either subpart TT or UU of this part, with the exception that open-ended lines that contain or contact hydrogen cyanide are not to be capped.

(h) *Spandex production applicability, definitions, and requirements*—(1) *Applicability*—(i) *Affected source*. For the spandex production (as defined in paragraph (h)(2) of this section) source category, the affected source shall comprise all emission points listed in

paragraphs (h)(1)(i)(A) through (C) of this section that are associated with a reaction spinning spandex production process unit located at a major source, as defined in section 112(a) of the Act.

(A) All process vents (as defined in § 63.1101).

(B) All storage vessels (as defined in § 63.1101) that store liquids containing organic HAP.

(C) All spandex fiber spinning lines using a spinning solution having organic HAP.

(ii) *Exceptions*. The emission points listed in paragraphs (h)(1)(ii)(A) and (B)



of this section are in the spandex production source category but are not subject to the requirements of paragraph (h)(3) of this section.

(A) Equipment that is located within a spandex production process unit that is subject to this subpart but does not contain organic HAP.

(B) Vessels storing organic liquids that contain organic HAP as impurities.

(iii) *Compliance schedule.* The compliance schedule for affected sources, as defined in paragraph (h)(1)(i) of this section, is specified in paragraph (b) of § 63.1102.

(2) *Definitions.*

*Spandex or Spandex fiber* means a manufactured synthetic fiber in which the fiber-forming substance is a long-chain polymer comprised of at least 85

percent by mass of a segmented polyurethane.

*Spandex production* means the production of synthetic spandex fibers.

*Spandex production process unit* means a process unit that is specifically used for the production of synthetic spandex fibers.

*Fiber spinning line* means the group of equipment and process vents associated with spandex fiber spinning operations. The fiber spinning line includes the blending and dissolving tanks, spinning solution filters, spinning units, spin bath tanks, and the equipment used downstream of the spin bath to wash, draw, or dry on the wet belt the spun fiber.

(3) *Requirements.* Table 10 to this section specifies the spandex

production source category requirements for new and existing sources. An owner or operator must perform the applicability assessment procedures and methods for process vents specified in § 63.1104, excluding paragraphs (b)(1), (d), (g), (h), (i), (j), (l)(1), and (n). General compliance, recordkeeping, and reporting requirements are specified in §§ 63.1108 through 63.1112. Minimization of emissions from startup, shutdown, and malfunctions must be addressed in the startup, shutdown, and malfunction plan required by § 63.1111; the plan must also establish reporting and recordkeeping of such events. Procedures for approval of alternate means of emission limitations are specified in § 63.1113.

TABLE 10 TO § 63.1103.—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE A SPANDEX PRODUCTION PROCESS UNIT AT A NEW OR EXISTING SOURCE?

If you own or operate * * *	And if * * *	Then you must * * *
1. A storage vessel (as defined in § 63.1101) that stores liquid containing organic HAP.	The maximum true vapor pressure of the organic HAP is $\geq 3.4$ kilopascals; and. The capacity of the vessel is $\geq 47$ cubic meters.	a. Comply with the requirements of subpart WW of this part; or b. Reduce emissions of organic HAP by 95 weight-percent by venting emissions through a closed vent system to any combination of control devices meeting the requirements of subpart SS of this part, as specified in § 63.982(a)(1).
2. A process vent .....	.....	Reduce emissions of organic HAP by 95 weight-percent; or reduce organic HAP or TOC to a concentration of 20 parts per million by volume; whichever is less stringent, by venting emissions through a closed vent system to any combination of control devices meeting the requirements of subpart SS of this part, as specified in § 63.982(a)(2).
3. A fiber spinning line .....	.....	Operate the fiber spinning line such that emissions are captured and vented through a closed vent system to a control device that complies with the requirements of subpart SS of this part, as specified in § 63.982(a)(2). If a control device other than a flare is used, HAP emissions must be reduced by 95 weight-percent; or total organic HAP or TOC must be reduced to a concentration of 20 parts per million by volume, whichever is less stringent.

14. Section 63.1104 is amended by:
- a. Revising the last sentence of paragraph (a);
  - b. Revising the first sentence of paragraph (e);
  - c. Revising the first sentence of paragraph (f)(1);
  - d. Revising the last sentence of paragraph (k) introductory text; and
  - e. Revising the first sentence of paragraph (m)(2)(i) introductory text.
- The revisions read as follows:

**§ 63.1104 Process vents from continuous unit operations: applicability assessment procedures and methods.**

(a) \* \* \* The owner or operator of a process vent is not required to determine the criteria specified for a process vent that is being controlled in accordance with the applicable weight-percent, TOC concentration, or organic HAP concentration requirement in § 63.1103.

\* \* \* \* \*

(e) *TOC or organic HAP concentration.* The TOC or organic HAP concentrations, used for TRE index

value calculations in paragraph (j) of this section, shall be determined based on paragraph (e)(1) or (k) of this section, or any other method or data that have been validated according to the protocol in Method 301 of appendix A of 40 CFR part 63. \* \* \*

(f) \* \* \*

(1) Use Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, as appropriate. \* \* \*

\* \* \* \* \*

(k) \* \* \* If a process vent flow rate or process vent organic HAP or TOC concentration is being determined for

comparison with the applicable flow rate or concentration value presented in the tables in § 63.1103 to determine control requirement applicability, engineering assessment may be used to determine the flow rate or concentration for the representative operating conditions expected to yield the highest flow rate or concentration.

\* \* \* \* \*

(m) \* \* \*

(2) *Process change.*

(i) Whenever a process vent becomes subject to control requirements under this subpart as a result of a process change, the owner or operator shall submit a report within 60 days after the performance test or applicability assessment, whichever is sooner. \* \* \*

\* \* \* \* \*

15. Section 63.1105 is added to read as follows:

**§ 63.1105 Transfer racks.**

(a) *Design requirements.* The owner or operator shall equip each transfer rack with one of the control options listed in paragraphs (a)(1) through (4) of this section.

(1) A closed vent system designed to collect HAP-containing vapors displaced from tank trucks or railcars during loading and to route the collected vapors to a flare. The owner or operator must meet the requirements of § 63.982(a)(3).

(2) A closed vent system designed to collect HAP-containing vapors displaced from tank trucks or railcars during loading and to route the collected vapors to a control device other than a flare. The owner or operator must meet the requirements of § 63.982(a)(3).

(3) Process piping designed to collect the HAP vapors displaced from tank trucks or railcars during loading and to route the collected vapors to a process where the HAP vapors shall predominantly meet one of, or a combination of, the ends specified in paragraphs (a)(3)(i) through (iv) of this section or to a fuel gas system. The owner or operator must meet the requirements of § 63.982(a)(3).

(i) Recycled and/or consumed in the same manner as a material that fulfills the same function in that process;

(ii) Transformed by chemical reaction into materials that are not HAP;

(iii) Incorporated into a product; and/or

(iv) Recovered.

(4) Process piping designed to collect the HAP vapors displaced from tank trucks or railcars during loading and to route the collected vapors to a vapor balance system. The vapor balance

system must be designed to route the collected HAP vapors to the storage vessel from which the liquid being loaded originated, or to another storage vessel connected to a common header, or to compress and route collected HAP vapors to a process.

(b) *Operating requirements.* An owner or operator of a transfer rack shall operate it in such a manner that emissions are routed through the equipment specified in paragraph (a) of this section.

(c) *Control device operation.* Whenever HAP emissions are vented to a control device used to comply with the provisions of this subpart, such control device shall be operating.

(d) *Tank trucks and railcars.* The owner or operator shall load HAP-containing materials only into tank trucks and railcars that meet the requirement in paragraph (d)(1) or (2) of this section, and shall maintain the records specified in paragraph (i) of this section.

(1) Have a current certification in accordance with the U.S. Department of Transportation (DOT) pressure test requirements of 49 CFR part 180 for tank trucks and 49 CFR 173.31 for railcars; or

(2) Have been demonstrated to be vapor-tight within the preceding 12 months as determined by the procedures in paragraph (h) of this section. Vapor-tight means that the pressure in a truck or railcar tank will not drop more than 750 pascals (0.11 pound per square inch) within 5 minutes after it is pressurized to a minimum of 4,500 pascals (0.63 pound per square inch).

(e) *Pressure relief device.* The owner or operator of a transfer rack subject to the provisions of this subpart shall ensure that no pressure relief device in the loading equipment of each tank truck or railcar shall begin to open to the atmosphere during loading. Pressure relief devices needed for safety purposes are not subject to the requirements of this paragraph.

(f) *Compatible system.* The owner or operator of a transfer rack subject to the provisions of this subpart shall load HAP-containing materials only to tank trucks or railcars equipped with a vapor collection system that is compatible with the transfer rack's closed vent system or process piping.

(g) *Loading while systems connected.* The owner or operator of a transfer rack subject to this subpart shall load HAP-containing material only to tank trucks or railcars whose collection systems are connected to the transfer rack's closed vent system or process piping.

(h) *Vapor tightness procedures.* For the purposes of demonstrating vapor tightness to determine compliance with paragraph (d)(2) of this section, the procedures and equipment specified in paragraphs (h)(1) and (2) shall be used.

(1) The pressure test procedures specified in Method 27 of appendix A to 40 CFR part 60.

(2) A pressure measurement device that has a precision of  $\pm 2.5$  millimeters of mercury (0.10 inch) or better and that is capable of measuring above the pressure at which the tank truck or railcar is to be tested for vapor tightness.

(i) *Recordkeeping.* The owner or operator of a transfer rack shall record that the verification of DOT tank certification or Method 27 of appendix A to 40 CFR part 60 testing required in § 63.84(c) has been performed. Various methods for the record of verification can be used such as: A check off on a log sheet, a list of DOT serial numbers or Method 27 data, or a position description for gate security showing that the security guard will not allow any trucks on-site that do not have the appropriate documentation.

\* \* \* \* \*

16. Subpart YY is proposed to be amended by adding § 63.1114 to read as follows:

**§ 63.1114 Implementation and enforcement.**

(a) This subpart can be implemented and enforced by the EPA, or a delegated authority such as the applicable State, local, or tribal agency. If the EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. Contact the applicable EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraphs (b)(1) through (5) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(1) Approval of alternatives to the nonopacity emissions standards in § 63.1103(a)(3), (b)(3) through (5), (c)(3), (d)(3), (e)(3), (f)(3), (g)(3) and (4), and (h)(3) under § 63.6(g). Follow the requirements in § 63.1113 to request permission to use an alternative means of emission limitation. Where these standards reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart.

(2) [Reserved]

(3) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(4) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(5) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

[FR Doc. 00-29767 Filed 12-5-00; 8:45 am]

**BILLING CODE 6560-50-P**