ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA–HQ–OAR–2017–0357; FRL–10006–87–OAR]

RIN 2060–AT02

National Emission Standards for Hazardous Air Pollutants: Generic Maximum Achievable Control Technology Standards Residual Risk and Technology Review for Ethylene Production

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action finalizes the residual risk and technology review (RTR) conducted for the Ethylene Production source category regulated under National Emission Standards for Hazardous Air Pollutants (NESHAP). In addition, the U.S. Environmental Protection Agency (EPA) is taking final action to correct and clarify regulatory provisions related to emissions during periods of startup, shutdown, and malfunction (SSM), including removing general exemptions for periods of SSM, adding work practice standards for periods of SSM where appropriate, and clarifying regulatory provisions for certain vent control bypasses. The EPA is also taking final action to revise requirements for heat exchange systems; add monitoring and operational requirements for flares; add provisions for electronic reporting of performance test results and other reports; and include other technical corrections to improve consistency and clarity. We estimate that these final amendments will reduce hazardous air pollutants (HAP) emissions from this source category by 29 tons per year (tpy) and reduce excess emissions of HAP from flares by an additional 1,430 tpy.

DATES: This final rule is effective on July 6, 2020. The incorporation by reference (IBR) of certain publications listed in the rule is approved by the Director of the Federal Register as of July 6, 2020.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2017–0357. All documents in the docket are listed on the *https://www.regulations.gov/* website. Although listed, some information is not publicly available, *e.g.,* Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *https://www.regulations.gov/,* or in hard copy at the EPA Docket Center, WJC West Building, Room Number 3334, 1301 Constitution Ave. NW, Washington, DC. The Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m., Eastern Standard Time (EST), Monday through Friday. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the EPA Docket Center is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT: For questions about this final action, contact Mr. Andrew Bouchard, Sector Policies and Programs Division (E143–01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–4036; and email address: *bouchard.andrew@epa.gov*. For specific information regarding the risk modeling methodology, contact Mr. Mark Morris, Health and Environmental Impacts Division (C539–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–5416; and email address: *morris.mark@epa.gov*. For information about the applicability of the NESHAP to a particular entity, contact Ms. Marcia Mia, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, WJC South Building, 1200 Pennsylvania Ave. NW, Washington, DC 20460; telephone number: (202) 564–7042; and email address: *mia.marcia@epa.gov*.

SUPPLEMENTARY INFORMATION:

Preamble acronyms and abbreviations. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

ACC American Chemistry Council
APCD air pollution control device
ASME American Society of Mechanical Engineers
BAAQMD Bay Area Air Quality Management District
BTF beyond-the-floor
Btu/scf British thermal units per standard cubic foot
CAA Clean Air Act
CBI Confidential Business Information
CDX Central Data Exchange
CEDRI Compliance and Emissions Data Reporting Interface
CFR Code of Federal Regulations
CO_2 carbon dioxide
CRA Congressional Review Act
EFR external floating roof
EMACT Ethylene Production MACT
EPA Environmental Protection Agency
FTIR Fourier transform infrared spectrometry
gpm gallons per minute
GMACT Generic Maximum Achievable Control Technology
HAP hazardous air pollutant(s)
HI hazard index
HQ hazard quotient
IBR incorporation by reference
ICR Information Collection Request
IFR internal floating roof
km kilometer
kPa kilopascals
LDAR leak detection and repair
LEL lower explosive limit
MACT maximum achievable control technology
m^3 cubic meter
Mg/yr megagrams per year
MIR maximum individual risk
MTVP maximum true vapor pressure
NAICS North American Industry Classification System
NESHAP national emission standards for hazardous air pollutants
NHVcz net heating value in the combustion zone gas
NHVvgnet heating value in the vent gas
NOCS Notification of Compliance Status
NPDES National Pollutant Discharge Elimination System
NRDC Natural Resources Defense Council
NTTAA National Technology Transfer and Advancement Act
OMB Office of Management and Budget
POM polycyclic organic matter
ppm parts per million
ppmv parts per million by volume
PRA Paperwork Reduction Act
PRD pressure relief device(s)
psig pounds per square inch gauge
REL reference exposure level
RFA Regulatory Flexibility Act
RTR residual risk and technology review
SCAQMD South Coast Air Quality Management District
SSM startup, shutdown, and malfunction
TAC Texas Administrative Code
TCEQ Texas Commission on Environmental Quality
The Court United States Court of Appeals for the District of Columbia Circuit
TOSHI target organ-specific hazard index
tpy tons per year
UMRA Unfunded Mandates Reform Act
VCS voluntary consensus standards
VOC volatile organic compound(s)

Background information. On October 9, 2019, the EPA proposed revisions to the Generic Maximum Achievable Control Technology (GMACT) Standards NESHAP based on our RTR for the Ethylene Production source category. In this action, we are finalizing decisions and revisions for the rule. We summarize some of the more significant comments we timely received regarding the proposed rule and provide our responses in this preamble. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in the

Summary of Public Comments and Responses for Risk and Technology Review for Ethylene Production, in Docket ID No. EPA–HQ–OAR–2017–0357. A ''tracked changes'' version of the regulatory language that incorporates the changes in this action is available in the docket.

Organization of this document. The information in this preamble is organized as follows:

I. General Information

A. Does this action apply to me?

Regulated entities. Categories and entities potentially regulated by this action are shown in Table 1 of this preamble.

TABLE 1—NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS FINAL ACTION

Source category	NESHAP	NAICS [1] code
Ethylene Production	GMACT Standards	325110

[1] North American Industry Classification System.

Table 1 of this preamble is not intended to be exhaustive, but rather to provide a guide for readers regarding entities likely to be affected by the final action for the source category listed. To determine whether your facility is affected, you should examine the applicability criteria in the appropriate NESHAP. If you have any questions regarding the applicability of any aspect of this NESHAP, please contact the appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section of this preamble.

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this final action will also be available on the internet. Following signature by the EPA Administrator, the EPA will post a copy of this final action at: *https://www.epa.gov/stationary-sources-air-pollution/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen.* Following publication in the **Federal Register**, the EPA will post the **Federal Register** version and key technical documents at this same website.

Additional information is available on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/risk-and-technology-review-national-emissions-standards-hazardous.* This information includes an overview of the RTR program and links to project websites for the RTR source categories.

C. Judicial Review and Administrative Reconsideration

Under the Clean Air Act (CAA) section 307(b)(1), judicial review of this final action is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit (the Court) by September 4, 2020. Under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce the requirements.

Section 307(d)(7)(B) of the CAA further provides that only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review. This section also provides a mechanism for the EPA to reconsider the rule if the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within the period for public comment or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule. Any person seeking to make such a demonstration should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000, WJC South Building,

1200 Pennsylvania Ave. NW, Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave. NW, Washington, DC 20460.

II. Background

A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of HAP from stationary sources. In the first stage, we must identify categories of sources emitting one or more of the HAP listed in CAA section 112(b) and then promulgate technology-based NESHAP for those sources. ''Major sources'' are those that emit, or have the potential to emit, any single HAP at a rate of 10 tpy or more, or 25 tpy or more of any combination of HAP. For major sources, these standards are commonly referred to as maximum achievable control technology (MACT) standards and must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). In developing MACT standards, CAA section 112(d)(2) directs the EPA to consider the application of measures, processes, methods, systems, or techniques, including, but not limited to, those that reduce the volume of or eliminate HAP emissions through process changes, substitution of materials, or other modifications; enclose systems or processes to eliminate emissions; collect, capture, or treat HAP when released from a process, stack, storage, or fugitive emissions point; are design, equipment, work practice, or operational standards; or any combination of the above.

For these MACT standards, the statute specifies certain minimum stringency requirements, which are referred to as MACT floor requirements, and which may not be based on cost considerations. See CAA section 112(d)(3). For new sources, the MACT floor cannot be less stringent than the emission control achieved in practice by the best-controlled similar source. The MACT standards for existing sources can be less stringent than floors for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, we must also consider control options that are more stringent than the floor under CAA section 112(d)(2). We may establish standards more stringent than the floor, based on the consideration of the cost of achieving the emissions reductions, any non-air quality health and environmental impacts, and energy requirements.

In the second stage of the regulatory process, the CAA requires the EPA to undertake two different analyses, which we refer to as the technology review and the residual risk review. Under the technology review, we must review the technology-based standards and revise them ''as necessary (taking into account developments in practices, processes, and control technologies)'' no less frequently than every 8 years, pursuant to CAA section 112(d)(6). Under the residual risk review, we must evaluate the risk to public health remaining after application of the technology-based standards and revise the standards, if necessary, to provide an ample margin of safety to protect public health or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. The residual risk review is required within 8 years after promulgation of the technology-based standards, pursuant to CAA section 112(f). In conducting the residual risk review, if the EPA determines that the current standards provide an ample margin of safety to protect public health, it is not necessary to revise the MACT standards pursuant to CAA section 112(f).[1] For more information on the statutory authority for this rule, see 84 FR 54278, October 9, 2019.

B. What is the Ethylene Production source category and how does the NESHAP regulate HAP emissions from the source category?

The Ethylene Production MACT standards (herein called the EMACT standards) for the Ethylene Production source category are contained in the GMACT NESHAP which also includes MACT standards for several other source categories. The EMACT standards were promulgated on July 12, 2002 (67 FR 46258), and codified at 40 CFR part 63, subparts XX and YY. The EMACT standards regulate HAP emissions from ethylene production units located at major sources. An ethylene production unit is a chemical manufacturing process unit in which ethylene and/or propylene are produced by separation from petroleum refining process streams or by subjecting hydrocarbons to high temperatures in the presence of steam. The EMACT defines the affected source as all storage vessels, ethylene process vents, transfer racks, equipment, waste streams, heat exchange systems, and ethylene cracking furnaces and associated decoking operations that are associated with each ethylene production unit located at a major source as defined in CAA section 112(a).

As of January 1, 2017, there were 26 facilities in operation and subject to the EMACT standards. We are also aware of the expansion and construction of several facilities. Based upon this anticipated growth for the Ethylene Production source category, we estimate that a total of 31 facilities will ultimately be subject to the EMACT standards and complying with this final rule over the course of the next 3 years. The source category and the EMACT standards are further described in the October 9, 2019, RTR proposal. See 84 FR 54278.

C. What changes did we propose for the Ethylene Production source category in our October 9, 2019, RTR proposal?

On October 9, 2019, the EPA published a proposed rule in the **Federal Register** for the EMACT standards of the GMACT NESHAP, 40 CFR part 63, subparts XX and YY, that took into consideration the RTR analyses. We proposed to find that the risks from the source category are acceptable, the current standards provide an ample margin of safety to protect public health, and more stringent standards are not necessary to prevent an adverse environmental effect. In addition, pursuant to the technology review for the Ethylene Production source category, we proposed that no revisions to the current standards are necessary for ethylene process vents, transfer racks, equipment leaks, and waste streams; however, we did propose changes for storage vessels and heat exchanger systems. We proposed revisions to the storage vessels control applicability requirements, pursuant to CAA section 112(d)(6), to tighten both the threshold for maximum true vapor pressure (MTVP) of total organic HAP (*i.e.*, decreasing it from 3.4 kilopascals (kPa) or greater to 0.69 kPa or greater) and the threshold for storage vessel capacity (*i.e.*, decreasing it from 95 cubic meter

[1] The Court has affirmed this approach of implementing CAA section 112(f)(2)(A): *NRDC* v. *EPA*, 529 F.3d 1077, 1083 (DC Cir. 2008) (''If EPA determines that the existing technology-based standards provide an 'ample margin of safety,' then the Agency is free to readopt those standards during the residual risk rulemaking.'').

(m^3) to 59 m^3) and to require storage vessels meeting these criteria to reduce emissions of total organic HAP by 98 weight-percent or use a floating roof storage vessel subject to the requirements of 40 CFR part 63, subpart WW. In addition, we proposed revisions to the heat exchange system requirements, pursuant to CAA section 112(d)(6), to require owners or operators to use the Modified El Paso Method and repair leaks of total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 parts per million by volume (ppmv) or greater.

We also proposed the following amendments:

- Revisions to the operating and monitoring requirements for flares used as air pollution control devices (APCDs), pursuant to CAA section 112(d)(2) and (3);
- requirements and clarifications for periods of SSM and bypasses, including for pressure relief device(s) (PRD) releases, bypass lines on closed vent systems, in situ sampling systems, maintenance activities, and certain gaseous streams routed to a fuel gas system, pursuant to CAA section 112(d)(2) and (3);
- work practice standards for decoking ethylene cracking furnaces (*i.e.*, minimizing emissions from the coke combustion activities in an ethylene cracking furnace), pursuant to CAA section 112(d)(2) and (3);
- revisions to the SSM provisions of the NESHAP (in addition to those related to flares, vent control bypasses, or ethylene cracking furnace decoking operations) in order to ensure that they are consistent with the Court decision in *Sierra Club* v. *EPA*, 551 F. 3d 1019 (DC Cir. 2008), which vacated two provisions that exempted source owners and operators from the requirement to comply with otherwise applicable CAA section 112(d) emission standards during periods of SSM;
- a requirement for electronic submittal of performance test results and reports, and Notification of Compliance Status (NOCS) reports;
- removal of certain exemptions for once-through heat exchange systems;
- overlap provisions for equipment at ethylene production facilities subject to both the EMACT standards and synthetic organic chemicals manufacturing equipment leak standards at 40 CFR part 60, subpart VVa;
- IBR of an alternative test method for EPA Methods 3A and 3B (for the manual procedures only and not the instrumental procedures);
- IBR of an alternative test method for EPA Method 18 (with caveats);
- IBR of an alternative test method for EPA Method 320 (with caveats); and
- several minor editorial and technical changes in the subpart.

III. What is included in this final rule?

This action finalizes the EPA's determinations pursuant to the RTR provisions of CAA section 112 for the Ethylene Production source category and amends the EMACT standards based on those determinations. This action also finalizes other changes to the NESHAP, including adding requirements and clarifications for periods of SSM and bypasses; revisions to the operating and monitoring requirements for flares used as APCDs; adding provisions for electronic reporting of performance test results and reports, NOCS reports, and Periodic Reports; and other minor editorial and technical changes. This action also reflects several changes to the October 9, 2019 RTR proposal in consideration of comments received during the public comment period as described in section IV of this preamble.

A. What are the final rule amendments based on the risk review for the Ethylene Production source category?

This section describes the final amendments to the EMACT standards being promulgated pursuant to CAA section 112(f). The EPA proposed no changes to the EMACT standards based on the risk reviews conducted pursuant to CAA section 112(f). In this action, we are finalizing our proposed determination that risks from this source category are acceptable, and that the standards provide an ample margin of safety to protect public health and prevent an adverse environmental effect. Section IV.A.3 of this preamble provides a summary of key comments we received regarding risk review and our responses.

B. What are the final rule amendments based on the technology review for the Ethylene Production source category?

The EPA is finalizing its proposed determination in the technology review that there are no developments in practices, processes, and control technologies that warrant revisions to the EMACT standards for process vents, transfer racks, equipment leaks, and waste streams in this source category. Therefore, we are not finalizing revisions to the EMACT standards for these emission sources under CAA section 112(d)(6). Also, based on comments received on the proposed rulemaking, we are not finalizing the proposed revisions to the EMACT standards for storage vessels under CAA section 112(d)(6) to tighten the control applicability thresholds for MTVP of total organic HAP (*i.e.*, decreasing it from 3.4 kPa or greater to 0.69 kPa or greater) and storage vessel capacity (*i.e.*, decreasing it from 95 m^3 to 59 m^3).

For heat exchange systems, we determined that there are developments in practices, processes, and control technologies that warrant revisions to the EMACT standards for this source category. Therefore, to satisfy the requirements of CAA section 112(d)(6), we are revising the EMACT standards, consistent with the October 9, 2019, RTR proposal, to include revisions to the heat exchange system requirements to require owners or operators to use the Modified El Paso Method and repair leaks of total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 ppmv or greater. In addition, based on comments received on the proposed rulemaking, we are also including an alternative mass-based leak action level of total strippable hydrocarbon equal to or greater than 0.18 kilograms per hour for heat exchange systems with a recirculation rate of 10,000 gallons per minute (gpm) or less.

Section IV.B.3 of this preamble provides a summary of key comments we received on the technology review and our responses.

C. What are the final rule amendments pursuant to CAA section 112(d)(2) and (3) for the Ethylene Production source category?

Consistent with *Sierra Club* v. *EPA* 551 F. 3d 1019 (D.C. Cir. 2008) and the October 9, 2019, RTR proposal, we are revising monitoring and operational requirements for flares to ensure that ethylene production facilities that use flares as APCDs meet the EMACT standards at all times when controlling HAP emissions. In addition, we are adding provisions and clarifications for periods of SSM and bypasses, including PRD releases, bypass lines on closed vent systems, in situ sampling systems, maintenance activities, and certain gaseous streams routed to a fuel gas system to ensure that CAA section 112 standards apply continuously. Also, for the same reason, we are adopting the proposed decoking operations work practice standards into the final rule with only minor changes, such as adding delay of repair provisions to the flame impingement inspection requirements, adding clarifying text to the carbon dioxide (CO_2) monitoring, coil outlet temperature monitoring, air removal, and radiant tube(s) treatment requirements, and removing unnecessary recordkeeping associated

with the time each isolation valve inspection is performed and the results of that inspection even if no problem was found. For details about these minor changes, refer to Section 6.7 of the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category,* available in the docket for this action.

Lastly, based on comments received on the proposed rulemaking, we are adding a separate standard for storage vessel degassing for storage vessels subject to the control requirements in Table 7 to 40 CFR 63.1103(e)(3)(b) and (e)(3)(c).

Section IV.C.3 of this preamble provides a summary of key comments we received on the CAA section 112(d)(2) and (3) provisions and our responses.

D. What are the final rule amendments addressing emissions during periods of SSM?

We are finalizing the proposed amendments to the EMACT standards to remove and revise provisions related to SSM. In its 2008 decision in *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008), the Court vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and (h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some CAA section 112 standards apply continuously. As detailed in section IV.E.1 of the proposal preamble, the Ethylene Production NESHAP requires that standards apply at all times (see 40 CFR 63.1108(a)(4)(i)), consistent with the Court decision in *Sierra Club* v. *EPA,* 551 F. 3d 1019 (D.C. Cir. 2008). We determined that facilities in this source category can generally meet the applicable EMACT standards at all times, including periods of startup and shutdown. As discussed in the proposal preamble, the EPA interprets CAA section 112 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 112 standards, although the EPA has the discretion to set standards for malfunctions where feasible. Where appropriate, and as discussed in section III.C of this preamble, we are also finalizing alternative standards for certain emission points during periods of SSM to ensure a continuous CAA section 112 standard applies "at all times." Other than for those specific emission points discussed in section III.C of this preamble, the EPA determined that no additional standards are needed to address emissions during periods of SSM.

We are also finalizing, as proposed, eliminating SSM exemptions for waste streams at facilities with a total annual benzene less than 10 megagrams per year (Mg/yr) and amending language in the definitions of "dilution steam blowdown waste stream" and "spent caustic waste stream" at 40 CFR 63.1082(b) to remove the exclusion for streams generated from sampling, maintenance activities, or shutdown purges. In addition, we are finalizing a revision to the performance testing requirements at 40 CFR 63.1108(b)(4)(ii)(B). The final performance testing provisions do not include the language that precludes startup and shutdown periods from being considered "representative" for purposes of performance testing, and instead allows performance testing during periods of startup or shutdown if specified by the Administrator. However, the final performance testing provisions prohibit performance testing during malfunctions because these conditions are not representative of normal operating conditions. The final rule also requires that operators maintain records to document that operating conditions during the test represent normal operations.

The legal rationale and detailed changes for SSM periods that we are finalizing here are set forth in the proposed rule. See 84 FR 54278, October 9, 2019. Also, based on comments received during the public comment period, we are revising 40 CFR 63.1103(e)(9) to sufficiently address the SSM exemption provisions from subparts referenced by the EMACT standards. For example, in addition to what we proposed, we are also clarifying that the certain referenced provisions do not apply when demonstrating compliance with the EMACT standards, such as phrases like "other than a start-up, shutdown, or malfunction" in the recordkeeping and reporting requirements of 40 CFR 63, subparts SS and UU. We are also not removing as proposed the term "breakdowns" in 40 CFR 63.998(b)(2)(i) as well as 40 CFR 63.998(d)(1)(ii) in its entirety.

Section IV.D.3 of this preamble provides a summary of key comments we received on the SSM provisions and our responses.

E. What other changes have been made to the NESHAP?

This rule also finalizes, as proposed, revisions to several other NESHAP requirements. We describe these revisions in this section as well as other revisions that have changed since proposal. To increase the ease and efficiency of data submittal and data accessibility, we are finalizing, as proposed, a requirement that owners and operators of facilities in the Ethylene Production source category submit electronic copies of certain required performance test results and reports and NOCS reports through the EPA's Central Data Exchange (CDX) website using an electronic performance test report tool called the Electronic Reporting Tool. In addition, in the final rule, we are correcting an error to clarify that Periodic Reports must also be submitted electronically (*i.e.,* through the EPA's CDX using the appropriate electronic report template for this subpart) beginning no later than the compliance dates specified in 40 CFR 63.1102(c) or once the report template has been available on the Compliance and Emissions Data Reporting Interface (CEDRI) website for at least 1 year, whichever date is later. Furthermore, we are finalizing, as proposed, provisions that allow facility operators the ability to seek extensions for submitting electronic reports for circumstances beyond the control of the facility, *i.e.,* for a possible outage in the CDX or CEDRI or for a *force majeure* event in the time just prior to a report's due date, as well as the process to assert such a claim.

To correct a disconnect between having a National Pollutant Discharge Elimination System (NPDES) permit that meets certain allowable discharge limits at the discharge point of a facility (*e.g.,* outfall) and being able to adequately identify a leak, we are finalizing, as proposed, the removal of certain exemptions for once-through heat exchange systems to comply with cooling water monitoring requirements.[2] Further, based on comments received on the proposed rulemaking, we are clarifying that the calibration drift assessment provisions at 40 CFR 60.485a(b)(2) apply only if the owner or

[2] Cooling water from a once-through heat exchange system at a petrochemical plant can be mixed with other sources of water (*e.g.,* cooling water used in once-through heat exchange systems in non-ethylene source categories, stormwater, treated wastewater, etc.) in sewers, trenches, and ponds prior to discharge from the plant. If this point of discharge from the plant is into a "water of the United States," then the facility is required to have a NPDES permit and to meet certain pollutant discharge limits.

operator is subject to those requirements in 40 CFR part 60, subpart VVa [see the 40 CFR part 60, subpart VVa overlap provisions in the final rule at 40 CFR 63.1100(g)(4)(iii)].

We are finalizing all of the revisions that we proposed for clarifying text or correcting typographical errors, grammatical errors, and cross-reference errors. These editorial corrections and clarifications are summarized in Table 9 of the proposal. See 84 FR 54278, October 9, 2019. We are also including several additional minor clarifying edits in the final rule based on comments received during the public comment period. We did not receive many substantive comments on these other amendments in the Ethylene Production RTR proposal. The comments and our specific responses to these items can be found in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category*, available in the docket for this action.

F. What are the effective and compliance dates of the standards?

The revisions to the EMACT standards being promulgated in this action are effective on July 6, 2020. From our assessment of the timeframe needed for implementing the entirety of the revised requirements (see 84 FR 54278, October 9, 2019), the EPA proposed a period of 3 years to be the most expeditious compliance period practicable. Although opposing comments regarding the proposed compliance dates were received during the public comment period, we are finalizing the 3-year compliance period as proposed. Amendments to EMACT standards for adoption under CAA sections 112(d)(2) and (3) and 112(d)(6) are subject to the compliance deadlines outlined in the CAA under section 112(i). For existing sources, CAA section 112(i) provides that the compliance date shall be as expeditiously as practicable, but no later than 3 years after the effective date of the standard. For new sources, compliance is required by the effective date of the final amendments or upon startup, whichever is later. As explained in the preamble to the proposed rule (84 FR 54278, October 9, 2019), the EPA recognizes the confusion that multiple different compliance dates for individual requirements would create and the additional burden such an assortment of dates would impose; and from our assessment of the timeframe needed for compliance with the entirety of the revised requirements, the EPA considers a period of 3 years after the effective date of the final rule to be the most expeditious compliance period practicable. Furthermore, as discussed in sections III and IV of this preamble, we are adding separate work practice standards to the final rule for the following SSM activities/events: (1) Periods of SSM for when flares are used as an APCD, (2) periods of SSM for certain vent streams (*i.e.* PRD releases and maintenance vents), (3) vent control bypasses for certain vent streams (*i.e.*, closed vent systems containing bypass lines, in situ sampling systems, and flares connected to fuel gas systems), and (4) decoking operations for ethylene cracking furnaces. The provisions being finalized are similar to the requirements promulgated in the Petroleum Refinery NESHAP. As we discovered during the Petroleum Refinery NESHAP rulemaking, the challenges faced by affected sources in complying with these requirements necessitated additional compliance time from what was promulgated, eventually having to move the original compliance date of these provisions from February 1, 2016, to August 1, 2018, an additional 2 and a half years.[3] Therefore the 3 year compliance date that was proposed for the EMACT standards provides a consistent time allowance to affected sources as was needed for Petroleum Refineries to fully implement the work practice standards. Thus, the compliance date of the final amendments for all existing affected sources, and all new affected sources that commence construction or reconstruction after December 6, 2000, and on or before October 9, 2019, is no later than July 6, 2023, or upon startup, whichever is later. The compliance date of the final amendments for all ethylene production new affected sources that commenced construction or reconstruction after October 9, 2019, is the effective date of these final rule amendments to the EMACT standards of July 6, 2020, or upon startup, whichever is later.

[3] *https://www.epa.gov/sites/production/files/2018-07/documents/petrefinery_compliance_ext_factsheet.pdf.*

IV. What is the rationale for our final decisions and amendments for the Ethylene Production source category?

For each issue, this section provides a description of what we proposed and what we are finalizing for the issue, the EPA's rationale for the final decisions and amendments, and a summary of key comments and responses. For all comments not discussed in this preamble, comment summaries and the EPA's responses can be found in the comment summary and response document available in the docket.

A. Residual Risk Review for the Ethylene Production Source Category

1. What did we propose pursuant to CAA section 112(f) for the Ethylene Production source category?

Pursuant to CAA section 112(f), the EPA conducted a residual risk review and presented the results of this review, along with our proposed decisions regarding risk acceptability and ample margin of safety, in the October 9, 2019, proposed rule for 40 CFR part 63, subparts XX and YY (84 FR 54278). The results of the risk assessment for the proposal are presented briefly in Table 2 of this preamble. More detail is in the residual risk technical support document, *Residual Risk Assessment for the Ethylene Production Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking.

TABLE 2—ETHYLENE PRODUCTION INHALATION RISK ASSESSMENT RESULTS

Number of facilities [1]	Maximum individual cancer risk (in 1 million) [2]		Estimated population at increased risk of cancer ≥ 1-in-1 million		Estimated annual cancer incidence (cases per year)		Maximum chronic noncancer TOSHI [3]		Maximum screening acute noncancer HQ [4]
	Based on . . .		Based on . . .		Based on . . .		Based on . . .		
	Actual emissions level	Allowable emissions level	Actual emissions level	Allowable emissions level	Actual emissions level	Allowable emissions level	Actual emissions level	Allowable emissions level	Based on actual emissions level
31	100	100	2.8 million ...	4.6 million ...	0.1	0.2	1	1	HQ_{REL} = <1

[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk due to HAP emissions from the source category. There is only one census block, and one person, at this risk level.
[3] Maximum target organ-specific hazard index (TOSHI). The target organ systems with the highest TOSHI for the source category are neurological and reproductive. The respiratory TOSHI was calculated using the California EPA chronic reference exposure level (REL) for acrolein.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of hazard quotient (HQ) values. HQ values shown use the lowest available acute threshold value, which in most cases is the REL. When an HQ exceeds 1, we also show the HQ using the next lowest available acute dose-response value.

Using actual emissions data, the results of the proposed inhalation risk assessment, as shown in Table 2 of this preamble, indicate the estimated cancer maximum individual risk (MIR) is 100-in-1 million, with naphthalene and benzene as the major contributors to the risk. There is only one census block, and one person, at this risk level. The second-highest facility cancer risk is 30-in-1 million. At proposal, the total estimated cancer incidence from this source category was estimated to be 0.1 excess cancer cases per year, or one excess case in every 10 years. Approximately 2.8 million people were estimated to have cancer risks above 1-in-1 million from HAP emitted from the facilities in this source category. At proposal, the estimated maximum chronic noncancer TOSHI for the source category was 1 (neurological and respiratory) driven by emissions of manganese and epichlorohydrin.

Using the MACT-allowable emissions, the risk results at proposal for the inhalation risk assessment indicated that the estimated cancer MIR was 100-in-1 million with naphthalene and benzene emissions driving the risks, and that the estimated maximum chronic noncancer TOSHI was 1 with manganese and epichlorohydrin as the major contributors to the TOSHI. At proposal, the total estimated cancer incidence from this source category considering allowable emissions was 0.2 excess cancer cases per year or 1 excess case in every 5 years. Based on allowable emission rates, 4.6 million people were estimated to have cancer risks above 1-in-1 million.

As shown in Table 2 of this preamble, the reasonable worst-case acute HQ (based on the REL) at proposal was less than 1. This value is the highest HQ that is outside facility boundaries. No facilities were estimated to have an HQ greater than or equal to 1 based on any benchmark (REL, acute exposure guideline level, or emergency response planning guidelines). In addition, at proposal, we identified emissions of arsenic compounds, cadmium compounds, mercury compounds, and polycyclic organic matter (POM), all HAP known to be persistent and bio-accumulative in the environment. The multipathway risk screening assessment resulted in a maximum Tier 2 cancer screening value of 30 for arsenic and a maximum Tier 3 noncancer screening value of 2 for mercury compounds. Based on facility-specific analyses performed for mercury for other source categories, we concluded that such analyses would reduce the mercury screening value to 1 or lower. In addition, a screening-level evaluation of the potential adverse environmental risk associated with emissions of arsenic, cadmium, hydrochloric acid, hydrofluoric acid, lead, mercury, and POMs indicated that no ecological benchmarks were exceeded.

We weighed all health risk factors, including those shown in Table 2 of this preamble, in our risk acceptability determination and proposed that the risks posed by the Ethylene Production source category are acceptable (section IV.C.1 of proposal preamble, 84 FR 54311, October 9, 2019).

We then considered whether the existing EMACT standards provide an ample margin of safety to protect public health and whether, taking into consideration costs, energy, safety, and other relevant factors, more stringent standards are required to prevent an adverse environmental effect. In considering whether the standards are required to provide an ample margin of safety to protect public health, we considered the same risk factors that we considered for our acceptability determination and also considered the costs, technological feasibility, and other relevant factors related to emissions control options that might reduce risk associated with emissions from the source category. We proposed that additional emissions controls for the Ethylene Production source category are not necessary to provide an ample margin of safety to protect public health and that more stringent standards are not necessary to prevent an adverse environmental effect (section IV.C.2 of proposal preamble, 84 FR 54312, October 9, 2019).

We also evaluate risk from whole facility emissions in order to help put the risks in context. Whole facility (or ''facility-wide'') emissions include those regulated under this source category plus all other emissions generated at each facility. The results of the chronic inhalation cancer risk assessment based on facility-wide emissions are more uncertain and rely on the quality of the emissions data collected for source categories outside this regulatory review. These emissions sources may not undergo the same level of data quality review as those being assessed in this regulatory assessment. The estimated maximum lifetime individual cancer risk based on facility-wide emissions is 2,000-in-1 million, with ethylene oxide from non-category (non-ethylene production process) emissions driving the risk. The total estimated cancer incidence based on facility-wide emissions is 1 excess cancer case per year. Approximately 6,500,000 people are estimated to have cancer risks above 1-in-1 million from HAP emitted from all sources at the facilities in this source category. The estimated maximum chronic noncancer hazard index (HI) based on facility-wide emissions is 4 (for the respiratory HI), driven by emissions of chlorine from non-category (non-ethylene production process) emissions. Approximately 200 people are estimated to be exposed to noncancer HI levels above 1.

2. How did the risk review change for the Ethylene Production source category?

We have not changed any aspect of the risk assessment since the October 9, 2019, RTR proposal for the Ethylene Production source category.

3. What key comments did we receive on the risk review, and what are our responses?

We received comments in support of and against the proposed residual risk review and our determination that no revisions were warranted under CAA section 112(f)(2) for the Ethylene Production source category. Generally, the comments that were not supportive of the determination from the risk reviews suggested changes to the underlying risk assessment methodology. For example, some commenters stated that the 100-in-1 million lifetime cancer risk cannot be considered safe or ''acceptable,'' and the EPA should include emissions outside of the source categories in question in the risk assessment and assume that pollutants with noncancer health risks have no safe level of exposure. After review of all the comments received, we determined that no changes were necessary. The comments and our specific responses can be found in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category,* available in the docket for this action.

4. What is the rationale for our final approach and final decisions for the risk review?

As noted in our proposal, the EPA sets standards under CAA section 112(f)(2) using ''a two-step standard-setting approach, with an analytical first step to determine an 'acceptable risk' that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR of approximately 1-in-10 thousand'' (84 FR 54278, October 9, 2019; see also 54 FR 38045, September 9, 1989). We weigh all health risk factors in our risk acceptability determination, including the cancer MIR, cancer incidence, the maximum cancer TOSHI, the maximum acute noncancer HQ, the extent of noncancer risks, the distribution of cancer and noncancer risks in the exposed population, multipathway risks, and the risk estimation uncertainties.

Since proposal, neither the risk assessment nor our determinations regarding risk acceptability, ample margin of safety, or adverse environmental effects have changed. For the reasons explained in the proposed rule, we determined that the risks from the Ethylene Production source category are acceptable, the current standards provide an ample margin of safety to protect public health, and more stringent standards are not necessary to prevent an adverse environmental effect. Therefore, we are not revising the EMACT standards to require additional controls pursuant to CAA section 112(f)(2) based on the residual risk review, and we are readopting the existing standards under CAA section 112(f)(2).

B. Technology Review for the Ethylene Production Source Category

1. What did we propose pursuant to CAA section 112(d)(6) for the Ethylene Production source category?

Pursuant to CAA section 112(d)(6), the EPA proposed to conclude that no revisions to the current EMACT standards are necessary for ethylene process vents, transfer racks, equipment leaks, and waste streams (sections IV.D.2 through IV.D.5 of proposal preamble, 84 FR 54314, October 9, 2019). We did not find any developments (since promulgation of the original NESHAP) in practices, processes, and control technologies that could be applied to ethylene process vents and that could be used to reduce emissions from ethylene production facilities. We also did not identify any developments in work practices, pollution prevention techniques, or process changes that could achieve emission reductions from ethylene process vents. For transfer racks, we identified one emission reduction option, at proposal, to revise the transfer rack applicability threshold (for volumetric throughput of liquid loaded) from 76 m^3 per day to 1.8 m^3 per day to reflect the more stringent applicability threshold of other chemical sector standards that regulate emissions from transfer rack operations (*i.e.*, 40 CFR part 63, subparts F and G and 40 CFR part 63, subpart FFFF). At proposal, we also identified two developments in leak detection and repair (LDAR) practices and processes for equipment leaks: (1) Lowering the leak definition for valves in gas and vapor service or in light liquid service from 500 parts per million (ppm) to 100 ppm and (2) lowering the leak definition for pumps in light liquid service from 1,000 ppm to 500 ppm. In addition, we identified two emission reduction options, at proposal, for waste streams: (1) specific performance parameters for an enhanced biological unit beyond those required in the Benzene Waste Operations NESHAP and (2) treatment of wastewater streams with a volatile organic compounds (VOC) content of 750 ppmv or higher by steam stripping prior to any other treatment process for facilities with high organic loading rates (*i.e.*, facilities with total annualized benzene quantity of 10 Mg/yr or more). However, based on the costs and emission reductions for each of the proposed options (for transfer racks, equipment leaks, and waste streams), we considered none of these options to be cost effective for reducing emissions from these emission sources at ethylene production units, and we proposed that it is not necessary to revise the EMACT standards for these emission sources pursuant to CAA section 112(d)(6).

Also, pursuant to CAA section 112(d)(6), we proposed revisions to the current EMACT standards for storage vessels and heat exchange systems (sections IV.D.1 and IV.D.6 of proposal preamble, 84 FR 54314, October 9, 2019). For storage vessels, we proposed tightening both the applicability threshold for MTVP of total organic HAP (*i.e.*, decreasing it from 3.4 kPa or greater to 0.69 kPa or greater) and the applicability threshold for storage vessel capacity (*i.e.*, decreasing it from 95 m^3 to 59 m^3) in Table 7 at 40 CFR 63.1103(e)(3)(a)(1) and 40 CFR 63.1103(e)(3)(b)(1), respectively. For heat exchange systems, we proposed to add a new provision, 40 CFR 63.1086(e), that would require owners or operators to use the Modified El Paso Method to monitor for leaks and to repair leaks of total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 ppmv or greater. We also proposed to add a new provision, 40 CFR 63.1088(d), establishing a delay of repair action level of total strippable hydrocarbon concentration (as methane) in the stripping gas of 62 ppmv, that if exceeded during leak monitoring, would require immediate repair (*i.e.*, the leak found cannot be put on delay of repair and would be required to be repaired within 30 days of the monitoring event). This would apply to both monitoring heat exchange systems and individual heat exchangers by replacing the use of any 40 CFR part 136 water sampling method with the Modified El Paso Method and removing the option that allows for use of a surrogate indicator of leaks. Finally, we proposed to add a new provision, 40 CFR 63.1087(c), requiring re-monitoring at the monitoring location where a leak is identified to ensure that any leaks found are fixed.

2. How did the technology review change for the Ethylene Production source category?

The EPA has not changed any aspect of the technology review for process vents, transfer racks, equipment leaks, and waste streams since the October 9, 2019, RTR proposal for the Ethylene Production source category. However, based on comments received on the proposed rulemaking, we are not finalizing the proposed revisions to the EMACT standards for storage vessels under CAA section 112(d)(6) to tighten the applicability threshold for MTVP of total organic HAP (*i.e.*, decreasing it from 3.4 kPa or greater to 0.69 kPa or greater) and the applicability threshold for storage vessel capacity (*i.e.*, decreasing it from 95 m^3 to 59 m^3). Moreover, although we are revising the EMACT standards for heat exchange systems consistent with the October 9, 2019, RTR proposal, we are also including, based on comments received on the proposed rulemaking, an alternative mass-based leak action level of total strippable hydrocarbon equal to or greater than 0.18 kilograms per hour for heat exchange systems with a recirculation rate of 10,000 gpm or less.

3. What key comments did we receive on the technology review, and what are our responses?

The EPA received comments in support of and against the proposed technology review amendments and our determination that no revisions were warranted under CAA section 112(d)(6) for process vents, transfer racks, equipment leaks, and waste streams in the Ethylene Production source category and that revisions were warranted for storage vessels and heat exchange systems in the Ethylene Production source category. Generally, for process vents, transfer racks, equipment leaks, and waste streams, the comments were either supportive of the determination that no cost-effective developments from the technology review were found, or that the Agency should re-open and re-evaluate the MACT standards for these emission sources and not consider cost in the technology review for the emissions sources. Based on our review of the comments received for process vents, transfer racks, equipment leaks, and waste streams, we are finalizing our determination that no cost-effective developments exist and that it is not necessary to revise these emission standards under CAA section 112(d)(6).

For storage vessels, the EPA received additional information from commenters on material composition, storage vessels that would be affected by the proposed option, and costs necessary for control of the storage vessels that would be affected by the proposed control option. After review of all the comments received, we determined that it is not cost effective to revise the storage vessel control requirements and are not finalizing revisions for this emissions source under CAA section 112(d)(6).

For heat exchange systems, the EPA received additional information from commenters on costs necessary for control of these sources as well as comments on a number of technical clarifications and allowance of compliance with an alternative mass-based leak action level should the EPA finalize the requirements for heat exchange systems. After review of all the comments received, we determined that it is cost effective to revise the heat exchange system requirements, and we are finalizing revisions for this emissions source under CAA section 112(d)(6) however, we are also including, based on comments received on the proposed rulemaking, an alternative mass-based leak action level of total strippable hydrocarbon equal to or greater than 0.18 kilograms per hour for heat exchange systems with a recirculation rate of 10,000 gpm or less.

This section provides comment and responses for the key comments received regarding the technology review amendments we proposed for storage vessels and heat exchange systems. Comment summaries and the EPA's responses for additional issues raised regarding the proposed requirements resulting from our technology review are in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category*, available in the docket for this action.

Comment: We received comments in support of and against the proposed changes to the storage vessel capacity and vapor pressure thresholds and corresponding control requirements. Most of the commenters opposed to the proposed requirements said the EPA's proposed changes to the capacity and vapor pressure thresholds for control of storage vessel emissions are not cost-effective. The commenters said that based on their analysis and using the EPA percentages of annual cost components (9.47-percent capital recovery, 5-percent maintenance, 4 percent for taxes, insurance, and administration, $380 per ton of VOC recovered), the average capital cost for control is approximately $1.2 million per tank, the average annual cost is $216,000 per tank, and the cost effectiveness of the control option is $108,000 per ton of VOC. The commenters said that their estimates account for materials and installation, in addition to the necessary cleaning and preparation required to install the floating roof or make the necessary connections to the closed vent system. The commenters asserted that degassing and cleaning do not appear to be included in the EPA's cost calculation and should be added as these are necessary steps to prepare the tanks for modification and ensure worker safety. The commenter said that their cost estimate is much higher than the EPA's estimate; and the commenters contended the EPA's estimated capital investment for the installation of an internal floating roof (IFR) on an existing fixed roof tank is unrealistic and should be revised. The commenters stated that at least one facility would install a new closed vent system to an existing control device, instead of an IFR, due to more favorable economics or site-specific constraints. The commenters said that the cost of this closed vent system is approximately $825,000 per tank (materials and installation). The commenters also provided certain technical details and cost information that they claimed as CBI.

Response: We are not finalizing the proposed requirements to tighten the storage vessel capacity and MTVP thresholds in response to comments and additional costs information that the EPA received on the proposal. Specifically, we reviewed and agree with the additional information submitted by commenters on the specific storage vessels that would be affected (*e.g.*, material composition and vapor pressure data, costs to control those storage vessels, and estimated emissions reductions). Importantly, the CBI submitted by one commenter provided details showing that installation of an IFR was not an option for their specific facility due to technical constraints. In addition, given that the proposed option would result in 10 tpy of VOC reductions nationwide (and lower emissions reductions for HAP) and cost over $1 million annually, we find the control of storage vessels at $108,000 per ton for VOC (and higher cost effectiveness for HAP) is not cost effective. Further, the proposed option would only affect six of the approximately 248 storage vessels in the source category [assuming an average of eight storage vessels per facility from the CAA section 114 Information Collection Request (ICR) data] and would not meaningfully reduce overall

emissions from the source category. Given all of this information, we are not finalizing the proposed requirements to tighten the storage vessel capacity and MTVP thresholds and are keeping the current MACT level of control for storage vessels in place.

Comment: A commenter stated that the proposed technology review amendments do not represent MACT and noted three control options were identified for storage vessels, but only one was adopted into the proposed rule. The commenter emphasized that many new ethylene production facilities are planned to be constructed or are under construction and the EPA must address their HAP emissions by applying the most stringent control technologies.

Similarly, another commenter stated that it would be unlawful, arbitrary, and capricious for the EPA not to set stronger standards for emissions from storage vessels. The commenter stated that although the EPA identified two other developments in technology for storage vessels: (1) Requiring LDAR for fittings on fixed roof storage vessels (*e.g.,* access hatches) using EPA Method 21, and the use of liquid level overfill warning monitors and roof landing warning monitors on storage vessels with an IFR or external floating roof (EFR); and (2) the conversion of EFRs to IFRs through use of geodesic domes, the EPA declined to require these controls simply because the control options were not cost effective. The commenter insisted that the EPA failed to show why the cost-per-ton it found for storage vessel developments are inappropriate and failed to show why further reductions are not required to satisfy CAA sections 112(d)(6) and (f)(2). The commenter noted the costs the EPA found ($6,120 per ton HAP to $44,100 per ton HAP) are lower than other rules where the EPA determined the cost-per-ton to be appropriate. As an example, the commenter cited the cost-per-ton from secondary lead smelting that were considered reasonable, ranging from $330,000 per ton to $1,500,000 per ton (77 FR 576, January 5, 2012). The commenter stated that because the EPA found higher cost-reduction ratios appropriate, it is arbitrary and capricious for the EPA not to require greater reductions for storage vessels, when they are achievable and would provide more protection for public health, as statutorily provided. The commenter asserted that several of these developments are already widely in use or required by other regulatory agencies. The commenter further argued that the EPA gives no explanation for why the Agency considers ''incremental cost effectiveness'' to be determinative rather than evaluating costs based on ''HAP cost effectiveness'' as it does for other source types, such as equipment leaks and waste streams.

The commenter argued that the EPA's decision to make cost-per-ton the standard-setting criterion and to choose a number it deems unreasonable, without a rational explanation, is arbitrary and capricious. The commenter stated the cost-per-ton of HAP reduction does not indicate whether a stronger standard is feasible and does not consider whether the industry could bear the costs of additional controls. The commenter stated that the ethylene production industry generated $50.8 billion in revenue in 2016 and the EPA cannot plausibly claim that this industry cannot afford to implement the identified storage vessel developments. The commenter noted that cost-per-ton says nothing about health risk, and that a ton of HAP is a very large amount. The commenter stated that the risk assessment for this source category shows the pollutants emitted in ethylene production are known to be hazardous at an exposure level of micrograms or less, and the carcinogens emitted (*e.g.,* benzene, formaldehyde, naphthalene) have no safe level of exposure. In addition, the commenter asserted that no two HAP create the same health risks and that reducing tons of one pollutant does not produce the same benefit as reducing tons of another. The commenter added that the EPA should not base its final standards on cost effectiveness at all; the Agency's job is simply to determine the ''maximum'' degree of reduction that can be achieved considering cost, under CAA section 112(d)(2), and to assure an ''ample margin of safety to protect public health'' under CAA section 112(f)(2). The commenter stressed that if the EPA wishes to consider cost effectiveness in any meaningful sense, it cannot rely on the cost-per-ton, which says nothing about the true effectiveness of reducing emissions of highly toxic pollutants, in terms of public health—which is a key factor missing from the EPA's analysis. Thus, the commenter concluded it was arbitrary and capricious for the EPA to decide that it was not necessary to update the standards to account for storage vessel developments based on cost.

The commenter also contended the EPA may consider cost but CAA section 112(d)(6) does not authorize the EPA to refuse to update standards based on cost. The commenter stated the Court has recognized that developments are the core requirement, and if developments have occurred, the EPA must account for those. The commenter further claimed that the EPA should follow the plain text of CAA section 112(d)(2)–(3) and applicable precedent requiring explicit authorization to consider cost. The commenter stated the EPA's cost-focused analysis ignores the statutory objective of assuring the ''maximum'' achievable degree of emission reduction provided in CAA section 112(d)(2), as implemented through the technology review. The commenter stated that this analysis also ignores the statutory goal of protecting public health, per CAA section 112 (f)(2).

The commenter also stated that although the EPA initially considered tightening the threshold for storage vessel capacity from 95 m^3 to 38 m^3, the EPA proposed a threshold of 59 m^3 because it found that ''it would not be cost-effective for this particular storage vessel to add additional controls due to its infrequent use.'' The commenter contended that the EPA cannot set a higher capacity threshold simply based on the cost of installing a control on one affected vessel, especially without information or analysis.

Response: We disagree with the comment that the EPA has an obligation to review prior MACT determinations and recalculate MACT floors as part of each CAA section 112(d)(6) review given that this argument has been repeatedly rejected by the Court. See, *e.g., Nat'l Ass'n of Surface Finishing* v. *EPA,* 795 F.3d 1 (DC Cir. 2015); *Association of Battery Recyclers* v. *EPA,* 716 F.3d 667, 673 (DC Cir. 2013); *Natural Resources Defense Council* (*NRDC*) v. *EPA,* 529 F.3d 1077 (DC Cir. 2008). In the proposal we neither re-evaluated nor re-opened the MACT standard for storage vessels under CAA sections 112(d)(2) and (3) in this action. For storage vessels, the revisions we proposed were as a result of the RTR under CAA sections 112(d)(6) and (f)(2). As also explained at proposal, under section 112(d)(6), the EPA is to review the ''emission standards promulgated under'' CAA section 112(d)(2) and (3). The EPA has consistently posited that CAA section 112(d)(6) focuses on the review of developments that have occurred in a source category since the original promulgation of a MACT standard. Similarly, the EPA is to conduct a risk review that evaluates whether the emission limits—the ''standards promulgated pursuant to subsection (d),'' [CAA section 112(f)(2)(A)]—should be made more stringent to reduce the risk posed after compliance with the underlying MACT standard. Therefore, the EPA does not have an obligation in its technology and

residual risk review to consider ''hypothetical'' facilities that is, facilities that have yet to begin construction (or may never even be constructed or operate) and where air emissions from ethylene production operations are merely anticipated because said operations do not yet exist and facilities have yet to start up. As also previously discussed we are not finalizing these proposed revisions under CAA section 112(d)(6) because they are not cost effective. In addition, the proposed revisions have little to no impact on HAP emissions for the source category. With respect to the role of cost in our decisions under the technology review, we note that the Court has not required the EPA to demonstrate that a technology is ''cost-prohibitive'' in order not to require adopting a new technology under CAA section 112(d)(6); a simple finding that a control is not cost effective is enough. See *Association of Battery Recyclers, et al.* v. *EPA, et al.*, 716 F.3d 667, 673–74 (D.C. Cir. 2015) (approving the EPA's consideration of cost as a factor in its CAA section 112(d)(6) decision-making and the EPA's reliance on cost effectiveness as a factor in its standard-setting).

The commenter's comparison of cost-per-ton estimates against other rules and other requirements within this final rule is also misplaced. The commenter draws a comparison to an analysis for metal HAP in the Secondary Lead NESHAP RTR, where those costs per ton were determined to be within the range of metal HAP values for other CAA section 112 rules (see 77 FR 576, January 5, 2012). However, organic HAP are the issue of concern for storage vessels, and the EPA has historically used a different and significantly lower cost-effectiveness scale for organic HAP versus metal HAP due to their relative toxicity. Generally, for organic HAP, we consider a cost effectiveness of $10,000/ton or more to be near the upper end of what the EPA has traditionally considered to be cost effective for control for these particular type of HAP.

In addition, we disagree with the commenter that consideration of incremental cost effectiveness was an unreasonable approach for comparing differing strategies that build upon one another. We note that CAA section 112(d)(6) does not prescribe a methodology for the agency's costs analysis, and the EPA has sometimes presented cost/ton-reduced numbers in the supporting analyses for regulations that we issue. See for example, *Husqvarna AB* v. *EPA*, 254 F. 3d 195 at 200 (D.C. Cir. 2001) (''Because section 213 does not mandate a specific method of cost analysis, we find reasonable the EPA's choice to consider costs on the per ton of emissions removed basis.''). For storage vessels, we proposed to tighten the capacity and MTVP thresholds for control (known as option SV1 in our technology review memorandum) and also evaluated two other control options that built upon option SV1. Option SV1 was evaluated in concert with the two other options, including adding enhanced monitoring requirements (option SV2) and requiring EFR storage vessels to convert to IFR storage vessels via use of geodesic domes (option SV3). The costs are presented such that the overall HAP cost effectiveness for options SV2 and SV3 also include option SV1, while the incremental cost-effectiveness values for options SV2 and SV3 are the cost-effectiveness values only for requiring enhanced monitoring and only for requiring EFR storage vessels to convert to IFR storage vessels via use of geodesic domes, respectively. Simply put, the incremental cost-effectiveness values for options SV2 and SV3 do not include costs and emissions reductions for option SV1. The commenter did not provide additional details on costs or emissions reductions on these options; thus, we continue to believe these options are not cost-effective and are not finalizing them. An incremental cost-effectiveness analysis was not needed for equipment leaks or waste operations because we did not propose any revisions under our CAA section 112(d)(6) technology review for these emission sources. We also did not consider control options for these emission sources that would build upon each other and necessitate an evaluation of incremental costs and, thus, the HAP cost effectiveness for the options presented in those analyses are equivalent to the incremental cost-effectiveness values presented for options SV2 and SV3 for storage vessels. For further information on our technology review for storage vessels, see the technical memorandum, *Clean Air Act Section 112(d)(6) Technology Review for Storage Vessels Located in the Ethylene Production Source Category*, which is available in Docket ID Item No. EPA–HQ–OAR–2017–0357–0014.

Lastly, we disagree with the commenter that it was unreasonable to consider an infrequently used storage vessel with a capacity of 58 m^3 (*i.e.*, a storage vessel with a capacity within the threshold of 38 m^3 and 59 m^3, which we evaluated, but did not propose) with little emissions and an extremely high cost-effectiveness value for control in setting the size threshold for control in our SV1 option evaluated under our CAA section 112(d)(6) review. As explained in the technology review memorandum, we first looked at other chemical sector and refinery NESHAP for storage vessel control thresholds for capacity and MTVP as a starting point and then we used our CAA section 114 ICR data to further refine option SV1. Based on our CAA section 114 data, only one storage vessel (with a capacity of 58 m^3) met the most stringent requirements for control from other NESHAP compared to the option we evaluated and would be impacted were we to evaluate this storage vessel in option SV1 (along with the other 12 storage vessels we anticipated would also be affected at proposal). Using the information from our CAA section 114 request that was submitted for this storage vessel (*e.g.*, size, number of tank turnovers, stored material composition), we conservatively estimated that this 58 m^3 storage vessel would only have annual emissions of 0.005 tpy of HAP if it had one full turnover (even though it reported having none in 2013). Considering the extreme case that all these emissions would be reduced from this storage vessel if it were required to be controlled, and if we made several other assumptions (*e.g.*, retrofit with an IFR, 12-foot diameter tank, one of each of the various upgraded deck fittings), we determined that controlling this one storage vessel would have an annualized cost of approximately $5,550 per year and not be cost effective (*i.e.*, over $1,000,000 per ton of HAP). We note that this information was available in the docket for commenters to use and provide their own estimates of HAP emissions and costs for control for this storage vessel. When considering this information, we find the option to tighten the capacity and MTVP thresholds to be even less cost effective if you consider impacts requiring control from the 58 m^3 storage vessel. Thus, as previously discussed, we are not finalizing the proposed capacity and MTVP thresholds we proposed for storage vessels and are keeping the current MACT level of control for storage vessels in place.

Comment: We received comments in support of and against the proposal to require use of the Modified El Paso Method for repairing leaks in heat exchange systems. A commenter that supported the proposal noted that at least eight facilities in the source category were already using the Modified El Paso Method. On the other hand, some commenters said the EPA's proposed control requirements for heat

exchange systems were not cost effective when considering the actual costs to repair leaks. A commenter said that the costs provided in Table 7 of the memorandum, *Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems Located in the Ethylene Production Source Category*, significantly underestimates the true cost associated with leak repair at ethylene production facilities. The commenter contended that for purposes of leak repair, after identifying a leak, maintenance and operations personnel must develop a strategy and schedule to remove the leaking exchanger from service, which involves identifying and selecting options for: Bypassing the process stream from the leaking system, the amount of production turndown necessary while the exchanger is out of service, identifying and selecting the appropriate contract personnel, and scheduling the work so that it does not conflict with any other planned maintenance. According to the commenter, several different personnel would be involved in these planning tasks including management, maintenance, production, and engineering staff (128 hour estimate is based on 32 hours × 4 persons). In addition to these planning costs, the commenter said that the EPA did not include costs for bypassing the leaking system to avoid a total shutdown which may include renting and plumbing temporary heat exchangers. The commenter also said that the EPA did not include costs for the rental and installation of cranes and scaffolding for accessing the heat exchanger for repairs, and costs for specialized contracted maintenance support to de-head the exchanger and perform the repair. Based on maintenance records, the commenter contended that repair costs range from $200,000 to $400,000 per event, not considering lost profit due to turndown or shutdown of the production unit. Factoring in these additional costs and using the EPA's estimated HAP emissions reductions of 25 tpy, the commenter said the revised cost effectiveness becomes $16,200 per ton of HAP. The commenter cited the RTR for Friction Materials Manufacturing Facilities (83 FR 19511, May 3, 2018) where the EPA found that $3,700 per ton for a permanent total enclosure was not cost effective, and the RTR for the Petroleum Refinery Sector (79 FR 36916, June 30, 2014) where the EPA found that $14,100 per ton for lowering leak definitions was not cost effective. The commenter also said that in cases where the leaking heat exchanger must be completely replaced to fix the leak, the costs exceed $1 million. The commenter stated that the EPA acknowledged in the preamble that emissions from heat exchange systems have an overall small contribution to cancer risk to the individual most exposed and that additional controls for heat exchange systems are not necessary to provide an ample margin of safety.

Response: We disagree with commenters that said the proposed requirements for heat exchange systems to use the Modified El Paso Method and a leak definition of 6.2 ppmv of total strippable hydrocarbon concentration (as methane) in the stripping gas are not cost-effective. We are finalizing this proposed development under CAA section 112(d)(6) with some minor technical clarifications that are discussed elsewhere in the rulemaking record (see our response in this preamble to commenters' requests to include an alternative mass-based leak definition; also see the document, *Summary of Public Comments and Responses for the Risk and Technology Review for Ethylene Production*, which is available in Docket ID No. EPA–HQ–OAR–2017–0357). We note that the existing MACT standards that were finalized in 2002 (67 FR 46258, July 12, 2002) contained LDAR provisions and many of the items commenters include in their cost estimates are associated with repair costs that would have already been incurred under the existing MACT standards. These repair costs include, but are not limited to, planning, bypassing, various equipment rental costs, costs for scaffolding, and deheading. We also disagree with commenter's cost estimates because most of the items that they claim are associated with the proposed revision will not be required by this final rule requirement (*i.e.*, we determined that the costs associated with the difference between conducting leak sampling using water sampling methods and leak sampling using the Modified El Paso Method as well as costs associated with combined operator and maintenance labor to find and repair a leak by plugging are the only costs that would be additionally incurred by the technology review standards). Further, commenters failed to provide enough information demonstrating why their costs information represents leak repair costs for an average heat exchange system at an ethylene production facility. For example, facilities may have additional heat exchange system capacity available at their facility and may opt to use this capacity to repair the leak, at no additional expense, yet this was not considered by commenters. Also, commenters did not provide additional information for us to evaluate the percentage of time additional leaks would have to be fixed under the revised heat exchange system standards proposed under technology review compared to the original MACT standards. Thus, we continue to believe that the majority, if not all of the repair costs cited by commenters would have been accounted for and incurred as a result of the existing MACT standards and that simply plugging a leaking heat exchanger would more likely represent the average cost additionally incurred by ethylene production sources as a result of this technology review development. In addition, in the proposed rule we explained that we considered a heat exchanger to effectively be at the end of its useful life if it was leaking to such an extent that it would need to be replaced in order to comply with the requirement; so the cost of replacing the heat exchanger would be an operational cost that would be incurred by the facility as a result of routine maintenance and equipment replacement and not attributable to the proposed work practice standard that is being finalized in this action (see the technical memorandum, *Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems in the Ethylene Production Source Category*, which is available in Docket ID No. EPA–HQ–OAR–2017–0357). Thus, given all of this information, we continue to believe that those costs associated with the difference between conducting leak sampling using water sampling methods and leak sampling using the Modified El Paso Method as well as costs associated with combined operator and maintenance labor to find and repair a leak by plugging are the only costs that would be additionally incurred by the technology review standards. Based on our analysis, we find that the revised standards we proposed for heat exchange systems are cost effective at $1,060 per ton of HAP without consideration of product recovery and result in a cost savings when you consider product recovery. Therefore, we are finalizing the revisions for heat exchange systems that we proposed under CAA section 112(d)(6) with some minor technical clarifications that are discussed elsewhere in this preamble and in the document, *Summary of Public Comments and Responses for the Risk and Technology Review for Ethylene Production*, which is available in Docket ID No. EPA–HQ–OAR–2017–0357.

Additionally, with respect to rules where we have determined that

requirements are not cost effective at varying levels of cost effectiveness, we note that there can be other compelling factors beyond cost effectiveness that play a role in the EPA's determinations and that each rulemaking is unique and should be judged on its own merits. With respect to the two proposed rules commenters cited, we note that different determinations likely would have resulted if some of the other variables in those rulemaking records were not considered, such as for the Friction Materials RTR (83 FR 19511, May 3, 2018) where no facilities in the source category would have been impacted by rule revisions under the technology review due to process changes and use of non-HAP solvents. Similarly, for the Petroleum Refinery RTR (79 FR 36916, June 30, 2014), consideration of other fugitive emissions management techniques that were finalized (*e.g.*, fenceline monitoring) also had the potential to help control equipment leaks in the Petroleum Refinery source category. Regardless, and as stated above, we believe that the developments we identified for heat exchange systems used in the Ethylene Production source category are cost effective and are finalizing these revisions under CAA section 112(d)(6).

Comment: Some commenters recommended the EPA revise 40 CFR 63.1086(e)(i) through (iii) to include an alternative mass-based leak definition. Commenters argued that by only defining a leak on a concentration basis, smaller facilities with lower heat exchange system recirculation rates would be forced to identify and fix leaks with a much lower potential HAP emissions rate than facilities with larger recirculation systems.

A commenter said the EPA should calculate the equivalent mass-based emission rate using the 90th percentile heat exchange system recirculation rates (165,000 gpm) and the leak definition of 6.2 ppmv as methane in the stripping gas, assuming 100 percent of the hydrocarbon is hexane, for an equivalent mass leak-based leak definition of 6.1 pounds per hour (2.8 kilograms per hour) of Table 1 to 40 CFR part 63, subpart XX HAP.

Another commenter said the EPA should modify the leak action level to be defined as potential strippable hydrocarbon emissions greater than 4.0 pounds per hour for heat exchange systems with a recirculation flowrate less than or equal to 100,000 gpm. The commenter asserted that the memorandum, *CAA Section 112(d)(6) Technology Review for Heat Exchangers Located in the Ethylene Production Source Category,* mentions one case where the concentration of methane was 6.1 ppmv in the gas phase and just less than 80 parts per billion by weight (ppbw) in the water phase, thus, resulting in emissions of 0.64 pounds per hour based on a recirculation rate of 17,000 gpm. Using this information, the commenter determined that an average cooling water system with a recirculation rate of 100,000 gpm (the average cooling water recirculation rate of the ethylene production industry based on the responses the EPA received to the CAA section 114 ICR) and a concentration of strippable hydrocarbons in the water of 80 ppbw, will have potential strippable hydrocarbon emissions of 4 pounds per hour.

A commenter also recommended the EPA adjust the ''delay of repair'' leak action level in 40 CFR 63.1088(d)(3) to 40 pounds per hour of potential strippable hydrocarbon emissions for heat exchange systems with a recirculation rate of 100,000 gpm or less, and maintain the ''delay of repair'' action level at a total strippable hydrocarbon concentration (as methane) in the stripping gas of 62 ppmv (approximately 800 ppbw in the cooling water) for heat exchange systems with a recirculation rate greater than 100,000 gpm.

Response: We agree with commenters that an alternative mass-based leak action level is warranted, and that by not finalizing such an alternative, smaller heat exchange systems with low recirculation rates would be disproportionally affected and forced to repair leaks with a much lower potential HAP emissions rate than facilities with larger recirculation rate systems. We disagree with commenters, however, that the foundation of the alternative mass-based leak action level should be based on the average recirculation rate in the source category of 100,000 gpm or the 90th percentile heat exchange system recirculation rate of 165,000 gpm. As commenters allude to, the goal of this alternative is to not disproportionally impact small heat exchange systems with low emissions potential. To that end and given that this is a technology review under CAA section 112(d)(6), consideration of where it is cost-effective to repair a leaking heat exchange system should be a primary consideration for this alternative. In our technology review memorandum, *Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems Located in the Ethylene Production Source Category,* at Docket ID Item No. EPA–HQ–OAR–2017–0357–0011, the nationwide impacts and emissions reductions presented in Tables 15 and 16 are used to determine the HAP cost effectiveness for the source category on average. In other words, the nationwide impacts for HAP cost effectiveness (without consideration of product recovery) at $1,060/ton of HAP would be the HAP cost effectiveness for an average heat exchange system in the source category that has a recirculation rate of approximately 100,000 gpm. We also generally consider that technology review developments are not cost effective for organic HAP if the cost effectiveness is more than $10,000/ton (or approximately 10 times higher than the cost effectiveness estimated for the average heat exchange system at ethylene production sources). Since the recirculation rate directly correlates to mass emissions potential at the same leak concentration, the mass emissions for a heat exchange system with recirculation rate of 10,000 gpm or less would be at least 10 times smaller compared to a 100,000 gpm recirculation rate system and the annual costs to find and repair leaks would not change. As such, we determined that it is not cost effective to control leaks at the leak action level of total strippable hydrocarbon of 6.2 ppmv (as methane) for heat exchange systems with a recirculation rate of 10,000 gpm or less, because the HAP cost effectiveness would be approximately $10,000/ton of HAP or more. Therefore, to alleviate the concern about disproportionally impacting small heat exchange systems with low HAP emissions potential, and to ensure our technology review developments are cost effective for all heat exchange systems in the source category, we are finalizing an alternative total hydrocarbon mass-based emissions rate leak action level (as methane) of 0.18 kilograms per hour (0.4 pounds per hour) for heat exchange systems in the Ethylene Production source category that have a recirculation rate of 10,000 gpm or less. We also agree that for consistency, and to not disproportionately impact small heat exchange systems, that an alternative mass-based leak action level of 1.8 kilograms per hour (4.0 pounds per hour) for delay of repair for heat exchange systems with a recirculation rate of 10,000 gpm or less is warranted.

4. What is the rationale for our final approach for the technology review?

Our technology review focused on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the EMACT standards were originally promulgated on July 12, 2002 (67 FR 46258). Specifically, we

focused our technology review on all existing MACT standards for the various emission sources in the Ethylene Production source category, including, storage vessels, ethylene process vents, transfer racks, equipment leaks, waste streams, and heat exchange systems. In the proposal, we only identified cost-effective developments for storage vessels and heat exchange systems and proposed to tighten the standards for these two emissions sources under technology review. We did not identify developments in practices, processes, or control technologies for ethylene process vents, transfer racks, equipment leaks, and waste streams. Further rationale about the technology review can be found in the proposed rule (84 FR 54278, October 9, 2019) and in the supporting materials in the rulemaking docket at Docket ID No. EPA–HQ–OAR–2017–0357.

During the public comment period, we received several comments on our proposed determinations for the technology review. The comments and our specific responses and rationale for our final decisions can be found in section IV.B.3 of this preamble and in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category*, available in the docket for this action. No information presented by commenters has led us to change our proposed determination, under CAA section 112(d)(6) for ethylene process vents, transfer racks, equipment leaks, and waste streams, and we are finalizing our determination that no changes to these standards are warranted. Substantive information was submitted by commenters on proposed revisions for heat exchange systems, and based on this information, we are finalizing revisions for heat exchange systems and making some technical clarifications to allow compliance with an alternative mass-based leak action level for small heat exchange systems with a recirculation rate of 10,000 gpm or less in lieu of the concentration-based leak action level that was proposed. Lastly, for storage vessels, substantive information was also submitted by commenters, and based on this additional information, we find that the developments we proposed are not cost effective for this emissions source. Thus, we are not finalizing any changes for storage vessels as a result of the technology review.

C. Amendments Pursuant to CAA Section 112(d)(2) and (d)(3) for the Ethylene Production Source Category

1. What did we propose pursuant to CAA section 112(d)(2) and (3) for the Ethylene Production source category?

Under CAA section 112(d)(2) and (3) we proposed to amend the operating and monitoring requirements for flares used as APCDs in the Ethylene Production source category to ensure that facilities that use flares as APCDs meet the EMACT standards at all times when controlling HAP emissions. We proposed to add a provision, 40 CFR 63.1103(e)(4), to extend the application of the Petroleum Refinery Flare Rule requirements in 40 CFR part 63, subpart CC to flares in the Ethylene Production source category with clarifications, including, but not limited to, specifying that several definitions in 40 CFR part 63, subpart CC, that apply to petroleum refinery flares also apply to flares in the Ethylene Production source category, adding a definition and requirements for pressure-assisted multi-point flares, and specifying additional requirements when a gas chromatograph or mass spectrometer is used for compositional analysis. Specifically, we proposed to retain the General Provisions requirements of 40 CFR 63.11(b) and 40 CFR 60.18(b) that flares used as APCDs in the Ethylene Production source category operate pilot flame systems continuously and that flares operate with no visible emissions (except for periods not to exceed a total of 5 minutes during any 2 consecutive hours) when the flare vent gas flow rate is below the smokeless capacity of the flare. We also proposed to consolidate measures related to flare tip velocity and new operational and monitoring requirements related to the combustion zone gas. Further, in keeping with the elimination of the SSM exemption, we proposed a work practice standard related to the visible emissions and velocity limits during periods when the flare is operated above its smokeless capacity (*e.g.*, periods of emergency flaring). We proposed eliminating the cross-references to the General Provisions and instead to specify all operational and monitoring requirements that are intended to apply to flares used as APCDs in the Ethylene Production source category.

In addition, we proposed provisions and clarifications for periods of SSM and bypasses, including PRD releases, bypass lines on closed vent systems, in situ sampling systems, maintenance activities, and certain gaseous streams routed to a fuel gas system to ensure that CAA section 112 standards apply continuously, consistent with *Sierra Club* v. *EPA* 551 F. 3d 1019 (D.C. Cir. 2008). For PRD releases, we proposed at 40 CFR 63.1103(e)(2) definitions of ''pressure relief device'' and ''relief valve'' and proposed to add a work practice standard at 40 CFR 63.1107(h)(3), (6), and (7) for PRDs that vent to atmosphere that requires three prevention measures and root cause analysis and corrective action when a release occurs.[4] We proposed to require that sources monitor PRDs that vent to the atmosphere using a system that is capable of identifying and recording the time and duration of each pressure release and of notifying operators that a pressure release has occurred. We also proposed to add a provision, 40 CFR 63.1107(h)(4), to require PRDs that vent through a closed vent system to a control device or to a process, fuel gas system, or drain system meet minimum requirements for the applicable control system. In addition, we proposed to add a provision, 40 CFR 63.1107(h)(5), to exclude the following types of PRDs from the work practice standard for PRDs that vent to the atmosphere: (1) PRDs with a design release pressure of less than 2.5 pounds per square inch gauge (psig); (2) PRDs in heavy liquid service; (3) PRDs that are designed solely to release due to liquid thermal expansion; and (4) pilot-operated and balanced bellows PRDs if the primary release valve associated with the PRD is vented through a control system. Finally, we proposed to add a provision, 40 CFR 63.1107(h)(8), to require future installation and operation of non-flowing pilot-operated PRDs at all affected sources.

For bypass lines on closed vent systems, we proposed to add a provision, 40 CFR 63.1103(e)(6), to not allow an owner or operator to bypass the APCD at any time, and if a bypass is used, then the owner or operator is to estimate and report the quantity of organic HAP released. We proposed this revision to be consistent with *Sierra Club* v. *EPA*, 551 F.3d 1019 (D.C. Cir. 2008), where the Court determined that standards under CAA section 112(d) must provide for compliance at all times, because bypassing an APCD could result in a release of regulated organic HAP to the atmosphere. We also proposed that the use of a cap, blind flange, plug, or second valve on an

[4] Examples of prevention measures include flow indicators, level indicators, temperature indicators, pressure indicators, routine inspection and maintenance programs or operator training, inherently safer designs or safety instrumentation systems, deluge systems, and staged relief systems where the initial PRD discharges to a control system.

open-ended valve or line is sufficient to prevent a bypass. For in situ sampling systems, we proposed to delete the exclusion of ''in situ sampling systems (online analyzers)'' from the definition of ''ethylene process vent'' and require that these kinds of vents meet the standards applicable to ethylene process vents at all times.

For maintenance activities, we proposed a definition for ''periodically discharged'' and removed ''episodic or nonroutine releases'' from the list of vents not considered ethylene process vents. We proposed to add a work practice standard at 40 CFR 63.1103(e)(5) requiring that, prior to opening process equipment to the atmosphere, the equipment either: (1) Be drained and purged to a closed system so that the hydrocarbon content is less than or equal to 10 percent of the lower explosive limit (LEL); (2) be opened and vented to the atmosphere only if the 10-percent LEL cannot be demonstrated and the pressure is less than or equal to 5 psig, provided there is no active purging of the equipment to the atmosphere until the LEL criterion is met; (3) be opened when there is less than 50 pounds of VOC that may be emitted to the atmosphere; or (4) for installing or removing an equipment blind, depressurize the equipment to 2 psig or less and maintain pressure of the equipment where purge gas enters the equipment at or below 2 psig during the blind flange installation, provided none of the other proposed work practice standards can be met. For cases where an emission source is required to be controlled in the EMACT standards but is routed to a fuel gas system, we proposed to add footnote b to Table 7 of 40 CFR 63.1103(e) to require that any flare, utilizing fuel gas whereby the majority (*i.e.*, 50 percent or more) of the fuel gas in the fuel gas system is derived from an ethylene production unit, comply with the proposed flare operating and monitoring requirements.

We proposed to add work practice standards at 40 CFR 63.1103(e)(7) and (8) to address the decoking of ethylene cracking furnaces (*i.e.*, the coke combustion activities in an ethylene cracking furnace), which is defined as a shutdown activity and was previously only required to minimize emissions by following a startup, shutdown, malfunction plan. This ensures that CAA section 112 standards apply continuously. To minimize coke combustion emissions from the decoking of the radiant tube(s) in each ethylene cracking furnace, we proposed that an owner or operator must conduct daily inspections of the firebox burners and repair all burners that are impinging on the radiant tube(s) as soon as practical, but not later than 1 calendar day after the flame impingement is found. We also proposed that an owner or operator conduct two of the following activities: (1) Continuously monitor (or use a gas detection tube every hour to monitor) the CO_2 concentration at the radiant tube(s) outlet for indication that the coke combustion in the ethylene cracking furnace radiant tube(s) is complete; (2) continuously monitor the temperature at the radiant tube(s) outlet to ensure the coke combustion occurring inside the radiant tube(s) is not so aggressive (*i.e.*, too hot) that it damages either the radiant tube(s) or ethylene cracking furnace isolation valve(s); (3) after decoking, but before returning the ethylene cracking furnace back to normal operations, purge the radiant tube(s) with steam and verify that all air is removed; or (4) after decoking, but before returning the ethylene cracking furnace back to normal operations, apply a coating material to the interior of the radiant tube(s) to protect against coke formation inside the radiant tube during normal operation. In addition, we proposed that the owner or operator must conduct the following inspections for ethylene cracking furnace isolation valve(s): (1) Prior to decoking operation, inspect the applicable ethylene cracking furnace isolation valve(s) to confirm that the radiant tube(s) being decoked is completely isolated from the ethylene production process so that no emissions generated from decoking operations are sent to the ethylene production process; and (2) prior to returning the ethylene cracking furnace to normal operations after a decoking operation, inspect the applicable ethylene cracking furnace isolation valve(s) to confirm that the radiant tube(s) that was decoked is completely isolated from the decoking pot or furnace firebox such that no emissions are sent from the radiant tube(s) to the decoking pot or furnace firebox once the ethylene cracking furnace returns to normal operation.

More information concerning our proposal to address CAA section 112(d)(2) and (3) can be found in the proposed rule (84 FR 54278, October 9, 2019).

2. How did the revisions pursuant to CAA section 112(d)(2) and (3) change since proposal?

The EPA is finalizing the revisions to the monitoring and operational requirements for flares, as proposed, except that we are not finalizing the work practice standard for velocity exceedances for flares operating above their smokeless capacity. In response to comments that owners or operators have historically considered degassing emissions from shutdown of storage vessels to be covered by their SSM plans per 40 CFR 63.1108(a)(5) and relied on the language in 40 CFR 63.1108(a)(5) that back-up control devices are not required, we are adding a separate standard for storage vessel degassing for storage vessels subject to the control requirements in Table 7 to 40 CFR 63.1103(e)(3)(b) and (c). The standard requires owners or operators to control degassing emissions for floating roof and fixed roof storage vessels until the vapor space concentration is less than 10 percent of the LEL. Storage vessels may be vented to the atmosphere once the storage vessel degassing concentration threshold is met (*i.e.*, 10 percent LEL) and all standing liquid has been removed from the vessel to the extent practical.

Lastly, based on comments received on the proposal, we are making some minor editorial corrections and technical clarifications to the work practice standards for the decoking of ethylene cracking furnaces. Specifically, we are adding delay of repair provisions to the flame impingement inspection requirements, adding clarifying text to the CO_2 monitoring, coil outlet temperature monitoring, air removal, and radiant tube(s) treatment requirements, and removing unnecessary recordkeeping associated with the time each isolation valve inspection is performed and the results of that inspection even if poor isolation was not found. For details about these minor changes, refer to Section 6.7 of the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category*, available in the docket for this action.

3. What key comments did we receive on the proposal revisions pursuant to CAA section 112(d)(2) and (3), and what are our responses?

This section provides comment and responses for the key comments received regarding our proposed revisions for flares and clarifications for periods of SSM, including PRD releases, decoking operations for ethylene cracking furnaces (*i.e.*, the decoking of ethylene cracking furnace radiant tubes), and storage vessel emptying and degassing. Other comment summaries and the EPA's responses for additional issues raised regarding these activities as well as issues raised regarding our proposed revisions for bypass lines on closed vent systems, in situ sampling systems, maintenance activities, and certain gaseous streams routed to a fuel gas system, can be found in the

document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category,* available in the docket for this action.

Comment: We received comments in support of and against our proposal to establish similar requirements for flares used in the Ethylene Production source category as the flare requirements established in the 2015 Petroleum Refinery NESHAP, including the incorporation of the net heating value of the combustion zone (NHVcz) calculation and limits. One commenter supported the proposed strengthened operational and monitoring requirements, which the commenter stated reflect best practices already in place at many facilities and must be required pursuant to CAA sections 112(d)(2), (3), and (6). The commenter reiterated the EPA's determination that measuring the net heating value of the flare gas, as it enters the flares, is insufficient to determine combustibility because facilities add steam and other gases not accounted for and that flare performance data shows that the net heating value of vent gas in the combustion zone must reach at least 270 British thermal units per standard cubic foot (Btu/scf). Some commenters also supported the EPA's proposal ''that owners or operators may use a corrected heat content of 1,212 Btu/scf for hydrogen, instead of 274 Btu/scf, to demonstrate compliance with the NHVcz operating limit,'' because the data show that the control efficiency of a flare drops off significantly below this level.

Another commenter also suggested other improvements to the proposed flared revisions. According to this commenter, data shows the proposed rule does not assure heating values in the combustion zone that are high enough to achieve the EMACT standards. The commenter said that the EPA has an extensive record to support its conclusion that some ethylene production facility flares do not destroy at least 98 percent of HAP, and urged the EPA to mandate additional measures to ensure 98-percent flare destruction efficiency. The commenter noted that at least one operator, Formosa, recognizes that flares can achieve 99-percent reduction in HAP emissions for small molecules.[5] The commenter stated that continuous monitoring of either the net heating value or composition of flare gas must be required pursuant to CAA sections 112(d)(2), (3), and (6). The commenter recommended that the EPA also consider the following measures to help assure compliance with 98-percent destruction efficiency:

- Prohibit wake dominated flow flaring conditions. The commenter noted that studies have shown that high winds can decrease flare destruction efficiency.[6]
- Require continuous video monitoring and recording for flares equipped with video monitoring and flares that vent more than 1 million standard cubic feet scf per day (MMscf/day).[7]
- Require monitoring of pilot gas, which is already required by the South Coast Air Quality Management District (SCAQMD) and Bay Area Air Quality Management District (BAAQMD).

The commenter also stated that the EPA should require that facilities conduct necessary flare maintenance and upgrades and have additional flare capacity on standby. The commenter stated that if a flare is smoking, that may mean it simply needs to be either maintained or updated to address the problem. The commenter recommended add-on equipment to augment the smokeless capacity of a flare.[8] The commenter also said that the EPA neither explained why other types of conveyances are not possible, nor can the EPA justify a standard that exempts equipment routed to a flare from the standards that generally apply to such equipment.

Response: We appreciate the support from several commenters for the flare operational and monitoring requirements being finalized at 40 CFR 63.1103(e)(4). However, we disagree with one commenter's request to mandate additional measures to ensure 98-percent flare combustion efficiency. The flare requirements we are finalizing are already designed to ensure flares meet a minimum destruction efficiency of 98 percent, consistent with the MACT control requirements.

We disagree with the commenter's specific request to prohibit wake dominated flow flaring conditions as we have extremely limited data to suggest that wind adversely impacts the combustion efficiency of flares, let alone the combustion efficiency of industrial-sized flares used at ethylene production units. Commenters submitted no new data to otherwise support the assertion that wind does indeed affect flare performance, and, as such, we are not persuaded into changing our position at proposal that no flare operating parameter(s) are needed to minimize wind effects on flare performance.

We disagree with the commenter's specific request to require continuous video monitoring and recording for flares equipped with video monitoring and flares that vent more than 1 MMscf/day. We note that in the final rule we have provided for the use of video camera surveillance monitoring as an alternative to EPA Method 22 monitoring. Observation via the video camera feed can be conducted readily throughout the day and will allow the operators of the flare to watch for visible emissions at the same time they are adjusting the flare operations.

We also disagree with the commenter's specific request to require monitoring of pilot gas. The data available to us suggests that heat release from the flare pilots are generally negligible when regulated materials are sent to the flare and exclusion of the flare pilot gas simplifies the NHVcz calculation. Even when only purge gas is used, the flare pilots typically only provided about 10 percent of the total heat input to the flare and typically well less than 1 percent in the recent passive fourier transform infrared spectrometry flare tests when potential regulated material is routed to the flare (this is dependent on the size of the flare, number of pilots, and flare tip design, which impacts minimum purge flows). We are finalizing the definition of flare vent gas as proposed, which excludes pilot gas.

Also, we disagree with the commenter's specific request to require additional flare capacity on standby to avoid a smoking flare because it would require new additional flares to operate at idle conditions for the vast majority

[5] The commenter provided the following reference: RISE St. James et al. Comments on 14 Proposed Initial Title V/Part 70 Air Permits, Proposed Initial Prevention of Significant Deterioration Permit, and the Associated Environmental Assessment Statement for FG LA, LLC (Formosa) Chemical Complex, Attachment E at 18 (August 12, 2019).

[6] The commenter provided the following reference: Robert E. Levy et al., Indus. Prof. for Clean Air, Reducing Emissions from Plant Flares (No. 61) at 1 (April 24, 2006).

[7] The commenter provided the following reference: See 84 FR 54296; BAAQMD § 12–11–507: requiring continuous video monitoring and recording for flares equipped with video monitoring and flares with vent gas more than 1 MMscf/day); SCAQMD Rule 1118(g)(7): requiring continuous video monitoring and recording; Consent Decree, *United States of America* v. *Marathon Petroleum Company LP et al.,* No. 12–cv–11544 (E.D. Mich.) (April 5, 2012); Consent Decree, *United States of America et al.* v. *BP Products North America Inc.,* No. 12–cv–0207 (N.D. Ind.) (May 23, 2012); Consent Decree, *United States of America* v. *Shell Oil Company et al.,* No. 13–cv–2009 (S.D. Tex.) (July 10, 2013); Consent Decree, *United States of America* v. *Flint Hills Resources Port Arthur, LLC,* No. 14–cv–0169, at 12 (E.D. Tex.) (March 20, 2014).

[8] The commenter provided the following reference: John Zink Hamworthy, Smokeless, Safe, Economical Solutions: Refining & Petrochemical Flares. Pg. 4 (this technology can increase the smokeless capacity of a flare by nearly 38 percent), available at *http://www.johnzink.com/wp-content/uploads/Flares-Refining-Petrochemical.pdf.*

of time, contributing to additional criteria pollutant emissions on a continuous basis, while having only a small impact on HAP emissions. For example, an existing flare burns approximately 25,000 to 100,000 standard cubic feet per day of natural gas (or fuel gas). If three new flares are added for each existing flare to ensure flares do not smoke during emergency shutdowns or other similar major events, then the additional emissions per existing flare would be 1,000 to 4,100 megagrams per year of CO_2 equivalence and 0.9 to 3.6 tpy of nitrogen oxides. This estimate does not include emissions from the generation of the extra steam needed for these flares to operate in a smokeless manner during the emission events. Therefore, the secondary impacts associated with having greater smokeless flare capacity would be significant. In addition, it is not clear whether the specific technology that the commenter cited to augment the smokeless capacity of a flare (*i.e.*, a specific steam-assisted flare system that uses multiple-port supersonic nozzle technology) is an ''add-on'' technology, nor did the commenter provide any data to quantify or substantiate the claims, or any other additional details on costs or emissions reductions for it.

Finally, the commenter did not provide any context regarding their comment about other types of conveyances and justifying standards; therefore, we are unable to respond to this portion of the comment.

Comment: A commenter stated that the EPA improperly based the proposed flare revisions on CAA sections 112(d)(2) and (3) and should have evaluated them under CAA section 112(d)(6). The commenter stated that in setting the original MACT, the EPA did not have actual data demonstrating that the best performers were achieving 98-percent HAP reduction with flares (and other combustion devices), but rather based its conclusions on what it presumed sources would achieve if a combustion device were operated consistent with the requirements in the rule. The commenter further stated that the EPA is now claiming that 98-percent HAP reduction was not achieved in practice by the best performers, and instead can only be achieved by the best performers if they take additional steps to reduce emissions (*e.g.*, meet NHVcz requirements and implement additional monitoring). The commenter contended the proposed flare revisions can only be either a BTF standard or a revision as a result of the technology review, and the EPA cannot make the standard more stringent simply by claiming it is ensuring compliance with the current standard.

The commenter argued the EPA should have evaluated the flare revisions under CAA section 112 (d)(6), found the revisions were not cost effective, and not proposed the flare revisions. To support the commenter's contention that the proposed flare requirements would not be cost effective, the commenter provided updated estimates for the costs presented in Tables 3, 6, and 7 of the EPA memorandum, *Control Option Impacts for Flares Located in the Ethylene Production Source Category*. The commenter made the following statements regarding costs:

- The EPA did not consider the cost of constructing new flares at existing facilities to meet the proposed requirements. The commenter stated that they know that at least one company would be required under the proposed rule to install at least two new flares, due to the high potential for existing flares to exceed the number of visible emissions events allowed, with a capital cost of $20 million and annualized costs of $3.1 million.
- Gas chromatographs would need to be installed in certain instances to comply with the proposed monitoring requirements, which the commenter suggests would have an estimated nationwide capital investment of $964,000 and annualized costs of $140,000 for installation and operation.
- The EPA did not account for the costs associated with upgrading natural gas controls and flow monitoring; the commenter estimated approximately 47 flares will require upgraded supplemental fuel controls and monitoring equating to a nationwide capital investment of $5.3 million and an annualized cost of approximately $1 million.
- The EPA did not account for supplemental natural gas firing to meet the revised NHVcz operating parameter, which the commenter estimates would cost approximately $66.8 million per year in additional operating costs.
- The EPA underestimated the costs to develop the flare management plan by inappropriately relying on the cost estimated for refineries. However, most refineries were subject to similar flare management plan requirements under 40 CFR part 60, subpart Ja, and, therefore, were only required to update existing plans, whereas the commenter said ethylene producers will generally be required to develop new flare management plans. The commenter estimated the cost to develop a new flare management plan is $23,300 per flare.
- The EPA did not include the cost to develop the continuous parametric monitoring system monitoring plan required by 40 CFR 63.671(b), which they estimate is an additional $7,400 per flare to develop.

Using their updated costs and the EPA's estimated 1,430 tpy of HAP reductions, the commenter stated that the cost effectiveness of the proposed flare requirements would be $55,874 per ton of HAP reduced. The commenter argued that the EPA would have found the proposed flare revisions not cost effective under CAA section 112(d)(6) and, therefore, would not have included the changes in the proposed rule.

Another commenter stated there would be complications complying with the proposed flare revisions, which would further increase the cost of the proposal, including: (1) When gas chromatographs are currently in use, some flares will need to add calorimeters to directly measure the net heating value on a minute-by-minute basis to help with process control and meet the requirements on a 15-minute basis; (2) some flares have multiple vent gas lines entering the flare system (*e.g.*, a line to the base of the flare and a line entering the side of the flare stack) and additional vent gas monitors will be needed; (3) some flares have two or more steam lines to the flare tip and additional steam flow monitors will be needed; and (4) some flares will need to install larger volume supplemental fuel lines, triggering the need for permitting and construction of these systems.

Response: We disagree with the commenter that the flare revisions should have been evaluated and proposed under CAA section 112(d)(6). As explained at proposal, we are not revising the MACT standards, which generally require 98-percent control efficiency and allow an owner or operator to choose the control device to meet the standard. Rather, we determined the flare operating and monitoring requirements were not adequate to ensure that 98-percent control efficiency can be met for a flare at all times. (84 FR 54294). As a general matter, available flare test data indicates that flares can achieve 99.9-percent control at certain times, and we believe that the long term nationwide average control efficiency achieved by flares meeting the final rule requirements could be over 98-percent control efficiency. In fact, in the development of the EMACT standards, the EPA stated that ''It is generally accepted that combustion devices achieve a 98 weight-percent reduction in HAP emissions . . .'' (65 FR 76428, December 6, 2000). However, in this

rulemaking, we are acknowledging that there are instances, particularly when either assist steam or assist air is used, where flare performance is degraded, and this level of control is not achieved at all times. Since the revisions ensure continuous compliance with the MACT standards, under CAA sections 112(d)(2) and (3), costs are not a factor considered for these revisions. *NRDC* v. *EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008) (''EPA may not consider costs in setting the maximum achievable control technology 'floors,' but only in determining whether to require 'beyond the floor' reductions in emissions.''); *NRDC* v. *EPA*, 489 F.3d 1364, 1376 (D.C. Cir. 2007 (''[C]ost is not a factor that EPA may permissibly consider in setting a MACT floor.''); see also, *Nat'l Lime Ass'n* v. *EPA*, 233 F.3d 625, 640 (D.C. Cir.2000)). At proposal, we acknowledged that some additional instrumentation and supplemental fuel may be needed for some flares and included cost estimates for these items. In addition, as previously explained, the EPA has no obligation to review prior MACT determinations and recalculate MACT floors as part of each CAA section112(d)(6) review. See, *e.g.*, *Nat'l Ass'n of Surface Finishing* v. *EPA*, 795 F.3d 1 (D.C. Cir. 2015); *Association of Battery Recyclers* v. *EPA*, 716 F.3d 667, 673 (D.C. Cir. 2013), *NRDC* v. *EPA*, 529 F.3d 1077(D.C. Cir. 2008).

Contrary to the commenter's assertions, we did estimate costs in order to provide the resulting impacts of the proposed flare requirements, and we are not revising these costs as a result of this comment. The largest impact on annual costs is associated with supplemental natural gas to meet the NHVcz limit, which the commenter estimated is approximately 18 times higher than our estimate ($66.8 million from the commenter versus $3.7 million for the EPA). We find the commenter's cost estimate unreasonable, and that commenters notably did not account for adjusting other flare parameters instead of using such a large amount of natural gas. We are also unable to re-create and establish how the estimated costs were developed by commenters due to a lack of information pertaining to baseline flare flows, waste gas compositions, current supplemental natural gas flows and steam flows. The commenter also stated that we did not include costs for flow monitors and controls, but these were specific items we included at proposal (see Table 3 in the memorandum, *Control Option Impacts for Flares Located in the Ethylene Production Source Category*), and the EPA's cost estimate for these items is higher than the commenter's cost estimate.

Comment: We received comments in support of and against the proposed work practice requirements for visible emissions and flare tip velocity. A commenter contended that the inherent nature of the ethylene production process (*i.e.*, ethylene production requires a significant amount of compression and refrigeration) necessitates the proposed flare work practice requirements to an even greater extent than the refinery sector. According to the commenter, in an upset situation such as a power outage or equipment malfunction, the compression and refrigeration systems can be lost resulting in a rapidly expanding volume of gas that must be removed from the process equipment to prevent potential damage and minimize safety risks.

Several commenters objected to the EPA's proposed emergency flaring provisions for smoking flares. Some commenters stated that the proposed number of visible emissions exceedance events allowed is not supported by data the EPA received in response to the CAA section 114 ICR. A commenter said that the information the EPA used indicates that there were zero velocity exceedances during any smoking; however, 40 CFR 63.670(o) implies that the flare must be operating above its smokeless capacity in order to smoke. The commenter said that unless the EPA has data indicating that these flares were exceeding their smokeless capacity (*i.e.*, there was a tip velocity exceedance) at the time of the smoking event, the database that the EPA used does not support its claims on the frequency of these events at the best performing flares and the proposed deviation definitions at 40 CFR 63.670(o)(7)(ii) and (iv) are arbitrary and capricious. Similarly, a commenter noted that the EPA ''assumed . . . that the best performers would have no more than one [visible emissions] event every 7 years'' based on industry survey data provided by the American Chemistry Council (ACC), which the commenter noted fails to provide date ranges for the data presented, or to identify the location of the facilities. The commenter also noted that the survey identifies zero exceedances of the flare tip velocity from any facility, and the average presented by industry is provided without any context. The commenter warned that without access to more detailed underlying data it is impossible to determine if the ACC data includes smoking events that occurred at flares when the flow rate to the flare was also below the smokeless capacity of the flare. The commenter urged that smoking events that occur when the smokeless capacity of a flare is not exceeded should not be included in determining the average frequency of hydraulic load smoking events at flares.

A commenter also stated that the information the ACC provided to the EPA showing visible emissions events and velocity exceedances (see Appendix B of Docket ID Item No. EPA–HQ–OAR–2017–0357–0017) identifies two flares as material handling flares and one flare as a process wastewater flare while all other flares are not characterized in any way. The commenter said that the inconsistent characterization of the flares raises questions about the nature of the flares used to support the EPA's claims on the frequency of these events at the best performing flares.

In addition, the commenter reiterated that the proposed revisions for releases from smoking flares do not satisfy CAA section 112(d)(2) or (3). The commenter said the EPA did not provide rationale, and did not meet, the statutory test for smoking flares. The commenter also said the EPA did not provide a reasonable analysis or determination showing that allowing one to two uncontrolled such events every 3 calendar years (plus *force majeure* event releases) reflects the average of the best performers' reductions and is the ''maximum achievable degree of emission reduction.'' The commenter urged that what is ''achievable for the average'' is not the statutory test. The commenter expressed the view that it is unclear how a smoking flare could ever meet CAA sections 112(d)(2) and (3).

The commenter recommended the EPA consider the data it collected on flares to determine the amount of HAP emitted. The commenter stated that the EPA has not explained why its own data on emission exceedances from equipment connected to flares would not allow it to set limits on smoking flares, and that the EPA has not and could not show, based on the record that the complete exemption for one to two smoking flare incidents at each flare, every 3 years, in any way satisfies CAA section 112(d)(3). The commenter stated that the EPA's failure to review actual data is especially egregious given the fact that the Texas Commission on Environmental Quality (TCEQ), the BAAQMD, and the SCAQMD have extensive data on the frequency that operators report smoking emissions from flares,[9] and given that the

[9] The commenter provided the following reference: This data is available on TCEQ Emission Event Reporting website (*http://*

Continued

smokeless capacity of the flare is an easily ascertainable characteristic. The commenter argued that using this data, the EPA could have potentially determined a MACT floor that complies with the requirements of the CAA.

The commenter also warned that the EPA does not meet the BTF requirements in CAA section 112(d)(2). The commenter stressed that the EPA has not demonstrated that allowing multiple smoking flare exemptions from the standards is the ''maximum achievable degree of emission reduction'' from those flares. The commenter argued that, at the very least, the EPA must set standards on the duration and amount of gas that is routed to a flare during a malfunction event that causes the flare to operate above its smokeless capacity, in addition to the cap on the number of exemptions included in the proposed rule. The commenter stated that the HAP emission limits for flares during malfunctions cannot be less stringent than the emission limits that apply during normal operations.

The commenter stated that, based on data from TCEQ, smoking flare events can last several minutes or multiple days, and the EPA's proposed regulations do not make clear whether this should be considered a single event or multiple smoking events. The commenter additionally noted that the EPA's proposed regulation does not make clear whether visible smoke emissions that are caused by multiple root causes occurring at the same time should count as one visible emission event or two.

Response: First, as explained at proposal flares are used as APCDs to control HAP emissions in both the Petroleum Refinery and Ethylene Production source categories. It is therefore not a specific emission source within the EMACT standards and, thus, we did not seek to establish a MACT floor for flares at the time that we promulgated the EMACT standards in the GMACT NESHAP. Rather, we identified flares as an acceptable means for meeting otherwise applicable requirements and we established flare operational standards that we believed would achieve a 98-percent destruction efficiency on a continual basis. As previously explained, recognizing that flares were not achieving the 98-percent reduction efficiency in practice at all times, we proposed additional requirements in the October 9, 2019, proposed rule (84 FR 54294) to ensure that flares operate as intended at the time we promulgated the EMACT standards. This is entirely consistent with agency practice of fixing underlying defects in existing MACT standards under CAA sections 112(d)(2) and (3), provisions that directly govern the initial promulgation of MACT standards. (See, National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries, October 28, 2009, 74 FR 55670; and National Emission Standards for Hazardous Air Pollutants: Group I Polymers and Resins; Marine Tank Vessel Loading Operations; Pharmaceuticals Production; and the Printing and Publishing Industry, April 21, 2011, 76 FR 22566)).

Regarding the operational standards for flares operating above the smokeless capacity, we note that these flare emissions are due to a sudden increase in waste gas entering the flare, typically resulting from a malfunction or an emergency shutdown at one or more pieces of equipment that vents emissions to the flare. The EPA disagrees with commenter's suggestion that standards are warranted for the duration and amount of gas discharged to a flare during malfunction events, which are infrequent, unpredictable and not under the control of an operator. Flares are associated with a wide variety of process equipment and the emissions routed to a flare during a malfunction can vary widely based on the cause of the malfunction and the type of associated equipment. Thus, it is not feasible to establish a one-size-fits-all standard on the amount of gas allowed to be routed to flares during a malfunction. Moreover, we note that routing emissions to the flare will result in less pollution than the alternative, which would be to emit directly to the atmosphere. We note that we do not set similar limits for thermal oxidizers, baghouses, or other control devices that we desire to remain operational during malfunction events to limit pollutant emissions to the extent practicable. However, we did propose work practice standards that we believed would be effective in reducing the size and duration of flaring events that exceed the smokeless capacity of the flare to improve overall flare performance. On that premise, we acknowledge that the data we received from ACC's survey identifies zero exceedances of the flare tip velocity during a smoking event; and we agree with the commenter that our proposed determination of the frequency of these events at the best performing sources is not supported. Therefore, in response to comments on our proposal, we are not finalizing the proposed work practice standard for when the flare vent gas flow rate exceeds the smokeless capacity of the flare and the tip velocity exceeds the maximum flare tip velocity operating limit. Instead, we are finalizing provisions that require compliance with the maximum flare tip velocity operating limit at all times, regardless of whether you are operating above the smokeless capacity of the flare.

In order to ensure 98-percent destruction of HAP discharged to the flare (as contemplated at the time the EMACT standards were promulgated) during both normal operating conditions when the flare is used solely as a control device and malfunction releases where the flare acts both as a safety device and a control device, we are finalizing, as proposed, the work practice standard for when the flare vent gas flow rate exceeds the smokeless capacity of the flare and visible emissions are present from the flare for more than 5 minutes during any 2 consecutive hours during the release event. As described in more detail in our technical memorandum, *Control Option Impacts for Flares Located in the Ethylene Production Source Category,* located at Docket ID Item No. EPA–HQ–OAR–2017–0357–0017, the best performing flare in the Ethylene Production source category for which we have information on visible emissions has a visible emissions event once every 7 years. Even if the best-performing flare ''typically'' only has one event every 7 years, the fact that visible emissions events are random by nature (unpredictable, not under the direct control of the owner or operator) makes it difficult to use a short term time span to evaluate a backstop to ensure an effective work practice standard. Thus, when one considers a longer term time span of 20 years, our analysis shows that three events in 3 years would appear to be ''achievable'' for the average of the best performing flares. We disagree with commenters that we should allow more or fewer visible emissions events above the smokeless capacity of a flare. We also disagree with commenters that the regulatory text we are cross-referencing at 40 CFR 63.670(o) is unclear about what constitutes an event or how to handle multiple root causes, especially since there is generally only a singular root cause at the heart of a visible emissions event.

With respect to the comment about conducting a BTF analysis under CAA section 112(d)(2), we note the work practice combustion efficiency standards (specifically limits on the net heating value in combustion zone)

www.tceq.texas.gov/field/eventreporting) and is also available in Excel format from the state agency.

apply at all times, including during periods of emergency flaring. Because flares are not an affected emissions source, but rather an APCD, no BTF analysis is needed. While requiring the use of systems such as back-up power or adding additional flares for additional flare capacity might alleviate additional visible emission events, we note that facilities would have to invest significant capital to build a back-up cogeneration power plant or add additional flare capacity for flares to operate on standby to handle very infrequent events we are limiting in this final rule. Combined with the costs, significant additional emissions would also be generated from a cogeneration power plant or from a flare operating in standby to handle infrequent smoking events and this would lead to a net environmental disbenefit and is contradictory to the commenter's own concerns about limiting emissions from flares since owners or operators of ethylene production facilities would have to construct more of them.

Comment: A commenter noted that CAA section 112(h) allows the EPA to set a ''work practice standard'' in lieu of a numerical emission standard only if it is ''not feasible to prescribe or enforce an emission standard.'' Further, the commenter noted, even when the EPA sets a work practice standard, such a standard must still be consistent with CAA sections 112(d)(2) and (3). The commenter rejected the EPA's rationale for the CAA section 112(h) determination in the proposal that ''application of a measurement methodology for PRDs that vent to atmosphere is not practicable due to technological and economic limitations.'' The commenter stated that the EPA's statement is false, and that the EPA's proposed reporting and recordkeeping requirements would mandate facilities ''calculate the quantity of organic HAP released during each pressure release event.'' According to the commenter, a 2007 SCAQMD report found that ''new (wireless) technology allows for continuous monitoring of PRDs without significant capital expense and makes it easy for operators to identify valve leaks . . . VOCs that are emitted from PRDs may be accurately identified, estimated, remedied, and reported immediately.'' [10] The commenter stated this monitoring technology is already in use at refineries in the United States,[11] and noted that SCAQMD required refineries to install wireless monitoring on 20 percent of the PRDs at their facilities since 2003 and on all PRDs since 2009.[12] The commenter noted that the EPA also relied on TCEQ data from seven ethylene production facilities that reported the quantity of HAP emissions released during specific PRD release events. For these reasons, the commenter argued that it is possible to measure PRD emissions, and they actually have been measured. The commenter stated that the EPA has not shown and cannot show why, in view of existing data on the amount, duration, and types of PRD releases, it cannot set a limit on these releases. The commenter further asserted that PRD releases may be captured and controlled; therefore, the EPA cannot use a work practice standard under CAA sections 112(h)(1) and (2)(A) to justify failing to set an appropriate numerical emission standard for them.

A commenter further objected to the proposed work practice standards because, they asserted, the EPA proposed the standards in part on the basis that the cost of measuring emissions is too high. The commenter stated that the EPA must set a MACT floor without consideration of cost, and that the cost is reasonable if 12 percent of existing sources met the limitation. The commenter argued that although the EPA stated that it would be economically prohibitive to construct an appropriate conveyance and install and operate continuous monitoring systems for each individual PRD that vents to atmosphere, the EPA fails to provide the estimated cost for construction and installation of such monitoring systems. The commenter argued that any such calculation would need to consider the impact of the EPA and state imposed flaring reduction programs, and the social and economic cost of the excess emissions from PRD emissions, including costs associated with the disruption in communities that are subject to ''shelter in place'' programs because of episodic releases from facilities.

Response: We disagree with the commenter's assessment and maintain the rationale provided in the proposal preamble (84 FR 54302, October 9, 2019), where we specifically discussed the issue related to constructing a conveyance and quantitatively measuring PRD releases and concluded that these measures were not practicable and that a work practice standard was appropriate. Owners or operators can estimate the quantity of HAP emissions released during a PRD release event based on vessel operating conditions (temperature and pressure) and vessel contents when a release occurs, but these estimates do not constitute a measurement of emissions or emission rate within the meaning of CAA section 112(h). The monitoring technology suggested by the commenter is adequate for identifying PRD releases and is one of the acceptable methods that facility owners or operators may use to comply with the continuous monitoring requirement. However, we disagree that it is adequate for accurately measuring emissions for purposes of determining compliance with a numeric emission standard. The technology cited by the commenter is a wireless monitor that provides an indication that a PRD release has occurred, but it does not provide information on either release quantity or composition. PRD release events are characterized by short, high pressure, non-steady state conditions that make such releases difficult to quantitatively measure. As such, we maintain our position that the application of a work practice standard is appropriate for PRDs.

Comment: We received comments in support of and against the proposed work practice standards for PRDs. Specific comments against the proposal related to whether they apply at all times.

A commenter stated that even assuming *arguendo* that the EPA could set a work practice standard for PRDs and that it otherwise had satisfied CAA sections 112(h) and (d), its action is unlawful because there would be no restriction that applies continuously as

[10] The commenter provided the following reference: SCAQMD, Rule 1173, *Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants* (amended February 6 2009), *http://www.arb.ca.gov/DRDB/SC/CURHTML/R1173.PDF*, EPA–HQ–OAR–2010–0682–0761; SCAQMD, Final Staff Report for Proposed Amended Rule 1173—*Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants* at 3–2 (May 15, 2007), Docket ID Item No. EPA–HQ–OAR–2010–0869–0024.

[11] The commenter provided the following reference: Rosemount Wireless Instrumentation, Refinery Improves Environmental Compliance and Reduces Costs with Wireless Instruments (2007) (''the result has been . . . true time and rate calculations for brief emissions''), *http://www2.emersonprocess.com/siteadmincenter/PM%20Rosemount%20Documents/00830-0100-4420.pdf;* see also *Adaptive Wireless Solutions, Continuous Valve Monitoring for Product Loss Prevention, Emission Reduction and ROI* at 2, *http://www.chemicalprocessing.com/assets/Media/MediaManager/Continuous_Monitoring_for_ROI.pdf;* Meeting Record for August 4, 2015, Representatives of Emerson Process Management and Representatives of Office of Air Quality Planning and Standards (U.S. EPA), Docket ID Item No. EPA–HQ–OAR–2010–0682–0743 (meeting regarding PRD monitoring tools and technologies).

[12] The commenter provided the following reference: SCAQMD, Staff Report at ES–2, 2–3 to 2–5, Docket ID Item No. EPA–HQ–OAR–2010–0869–0024.

the CAA directs.[13] The commenters stated that the proposed rule would permit an uncontrolled amount of HAP to be released by a PRD repeatedly, when it is opened at the facility's sole discretion. A commenter stated this means that once or twice every 3 years and whenever there is a *force majeure* event, any amount of HAP that may come from these devices could be released, and would not be a violation, no matter the original source of emissions.

A commenter argued that the fact that the EPA required three non-defined steps (including monitoring mechanisms, such as flow indicators, routine inspection and maintenance, and operator training) to be taken to try to prevent such releases does not mean that there is a continuous CAA section 112-compliant emission standard that applies. The commenter stated that none of these steps would restrict pollution released during PRD openings, would make the PRD malfunction exemptions lawful, or would turn them into a standard instead of an exemption. The commenter noted that although there are some potential controls listed as work practice requirements that a facility may choose to implement (*e.g.*, ''deluge systems'' and ''staged relief systems where the initial PRD discharges to a control system''), the proposed rule does not require any facility to either install them or any other controls or limits on PRDs. The commenter stated this should be required pursuant to the MACT floor, as the best performing PRDs are controlled, and the best performing process units are not equipped with any PRDs that are capable of venting emissions directly to the atmosphere.

The commenter stated that because analyses, reports, and potential corrective action steps would be required after such releases occur, that does not mean that the EPA has implemented a continuous emission standard. The commenter also stated that uncontrolled releases are not considered a violation, and there is no civil penalty for the HAP emitted during the allowable PRD releases. Under the proposed rule, the commenter argued, no matter how many corrective actions a facility may take afterward, the release would still be an authorized release, allowing an unlimited amount of toxic air pollution to be emitted into the air from facility equipment albeit through a PRD. The commenter said that post-hoc measures may help discover why a release happened, and might even help to prevent release, but these measures are not considered controls or limits on the pollution that was released. The commenter stated that the EPA additionally failed to propose any regulatory requirement to end PRD releases as soon as it is discovered.

Another commenter agreed that the EPA has the authority and obligation to adopt work practice standards under the *Sierra Club* SSM decision. The commenter reiterated the *Sierra Club* decision and said the EPA must ensure that some ''emission standard'' applies at all times—except that the standard that applies during normal operation need not be the same standard for SSM periods. The commenter said the requirement for ''continuous'' standards means only that a facility may not install control equipment and then turn it off when atmospheric conditions are good; and it does not mean that work practice standards must physically restrict emissions from all equipment at all times. The commenter said that the EPA has consistently imposed as ''MACT'' standards a variety of work practice obligations that do not prohibit or limit emissions to a specified level at all times, but rather are designed to limit overall emissions from various processes over the course of a year. The commenter said the EPA's own LDAR programs illustrate this distinction. The commenter contended that no court has suggested that periods of ''unlimited emissions'' [*e.g.*, 40 CFR 63.119(b)(1) (internal floating roof allowed not to contact with stored material during filling/emptying); 40 CFR 63.119(b)(6) (covers on tank openings may be opened when needed for access to contents); 40 CFR 63.135(c)(2) (allowing openings on containers as necessary to prevent physical damage)] render these requirements insufficient under CAA section 112. Rather, the work practice standards associated with these requirements—*e.g.*, maintaining openings in a closed position except as necessary for access; conducting filling/emptying as rapidly as possible—are considered to be acceptable mechanisms to minimize overall emissions from these types of equipment, even when they do not limit emissions at all during a few brief periods that are necessary for operational or safety reasons.

Response: We disagree with the underlying premise of the first commenter that any PRD release should be deemed a violation of section 112 and must be directly enforceable. As we have explained, we believe that a work practice standard, rather than a numerical limit applicable to each PRD release is appropriate. To the extent the commenter is claiming that a standard does not apply at all times, we also disagree. Although there is not a numerical limit that each PRD must meet at all times, we have established a work practice standard that does apply at all times. The work practice standard for PRDs requires operators to adopt prevention measures to minimize the likelihood of PRD release events, and the installation and operation of continuous monitoring device(s) to identify when a PRD release has occurred. These measures must be complied with at all times, and thus the work practice standard does apply at all times. (See for example, *Mexichem Specialty Resins, Inc.* v. *EPA*, 787 F.3d 544, 560 (D.C. Cir. 2015) (''The regulations anticipate that regulated entities will be allowed to open bypasses during maintenance as long as they comply with the opening provisions set forth therein.''). Additionally, having a backstop on the number of PRD releases allowed and requiring root cause analysis and corrective action analysis will ensure PRD releases are further minimized. We also note that we have always (since the rule was initially promulgated) had requirements in our equipment leaks regulations at 40 CFR 63.1030(c) for the Ethylene Source category that ensure a PRD has properly reseated after a release. We agree with the second commenter that there are a variety of work practice standards the EPA has adopted in its section 112 regulations that operate similar to the PRD requirements in that they do not prohibit emissions from equipment at all times or otherwise establish numeric limits for emissions from those pieces of equipment.

Comment: Commenters stated that the EPA cannot use CAA section 112(h) to allow unlimited HAP releases from PRDs because the authorizations for uncontrolled PRD releases are back-door exemptions from the other underlying standards regulating ethylene production facilities. For uncontrolled PRD releases, the commenter asserted that the EPA did not and could not reasonably explain how it is lawful to authorize completely uncontrolled emissions under CAA section 112(h). The commenter noted that the Court previously upheld a decision not to create a malfunction or ''excursion'' provision.[14]

The commenter argued that historically there has been no limit on

[13] The commenter provided the following reference: *Sierra Club*, 551 F.3d at 1028; CAA section 304(k).

[14] The commenter provided the following reference: *Weyerhaeuser Co.* v. *Costle*, 590 F.2d 1011, 1057 (D.C. Cir. 1978) (citing *Am. Petrol. Inst.* v. *EPA*, 540 F.2d 1023, 1036 (10th Cir. 1976) (denying excursions)).

emissions when a PRD acts like a process vent, and that the EPA's purpose in conducting this rulemaking was, in part, to remove these unlawful exemptions as compelled by law. The commenter warns that the EPA's proposed rule reinstates new versions of precisely the same sort of exemptions, by allowing at least one, and in some instances two ''free passes'' to emit uncontrolled pollution every 3-year period for each PRD. The commenter further remarked that exempting such emissions from the definition of violation negates the meaning of ''emission standard,'' and shows that no standard applies to these releases.

The commenter stated that the EPA cannot create any exemption from or weakening of EMACT equipment standards simply because excess emissions from equipment are routed through a PRD. The commenter argued that doing so unlawfully weakens the original CAA section 112(d) standards for the linked equipment, without any reasoned explanation or support for doing so. Further, the commenter stated that because the EPA proposes that no emission standard applies during the uncontrolled releases, the exemptions violate CAA sections 112(d) and 302(k) and flout the Court's decisions in these cases, and also conflict with the EPA's decision not to create an unlawful exemption in the Boilers case.[15] The commenter stated that the EPA provided no statutory explanation or interpretation of how its action could comport with CAA sections 112 and 302(k), therefore, if the EPA were to finalize these exemptions, the EPA would open itself up to a violation of the CAA's core rulemaking requirements applicable to CAA sections 112(d) and (f) standards.

The commenter asserted that the proposed rule therefore seeks to establish major exemptions that allow uncontrolled releases due to predictable and often-repeated malfunctions. The commenter noted that the even though the standard explicitly defines a violation as the second or even the third such release from the same PRD during a 3-year period, whether the second uncontrolled release from the same PRD is a violation depends on if the release has the same root cause. The commenter stated that PRDs are not independent emission points, and that PRDs never release pollution into the air or smoke unless there is a malfunction. The commenter also asserted that the EPA's attempt to define a new way in which a facility can claim excess emissions are not a violation echoes the ''affirmative defense'' provision the Court held unlawful in *NRDC*, 749 F.3d 1055, 1064 (D.C. Cir. 2013). The commenter argued that the EPA may not flout statutory constraints Congress enacted in its discretion by trying to remove civil penalty liability for excess emissions that violate the CAA and increase human exposure to toxic air pollution directly, contrary to the CAA. The commenter pointed to the cement kilns case, in which they asserted the EPA tried to claim that the unlawful affirmative defense to civil penalties was ''part of the emission standard,'' noted that the Court rejected these arguments in *NRDC*, 749 F.3d 1055, 1064 (D.C. Cir. 2013), and argued that precedent would apply equally here.[16] The commenter further argued that the proposed rule, by allowing owners or operators to conduct root cause analyses for these events, essentially permits owners or operators—not the courts—to make the determination whether they should be subject to enforcement or penalties for certain PRD releases, which determines whether an event is either actionable (*i.e.*, the result of operator error or poor maintenance, or whether it was the result of the same root cause as a prior event). The commenter further stated that the proposed exemptions contravene the citizen suit and penalty provisions by creating a *de facto* complete defense (not just an affirmative defense) from civil penalties for certain uncontrolled emission releases that would otherwise constitute violations. The commenter pointed to a ruling by the Court that explained how creating such a multi-stage complicated assessment to determine if a violation has occurred undermines the purpose of the CAA and the ability to enforce it.[17]

According to the commenter, by granting this exemption, the EPA may incentivize facilities to release large amounts of HAP through PRDs rather than flares to avoid using one of their ''free passes'' for the prohibition on visible smoke emissions from flares. Instead of meeting the CAA section 112 standards that apply to other facility equipment routed to PRDs or flares, the commenter asserted that exemptions authorize a facility to violate those limits and have no liability if the excess emissions are emitted directly into the air. The commenter stated that this even creates a perverse incentive for operators to install redundant PRDs on process equipment. The commenter also stated that, at the very least, the EPA must include regulations prohibiting the installation of new redundant PRDs to circumvent the prohibition on atmospheric releases.

The commenter further stated that emissions from malfunctions at ethylene production facilities that are released through PRDs are a significant source of underestimated HAP emissions. The commenter suggested that the emissions from PRD releases are a substantial problem for the industry as a whole when viewed over time. Further, the commenter argued that there is no upper limit on the amount of pollution an individual PRD event can release to the atmosphere. The commenter asserted that the EPA's proposed exemptions would, therefore, bar enforcement action against the worst events.

A commenter observed that uncontrolled PRD releases are preventable and avoidable, and that they need not occur if a facility avoids over-pressure in the system. The commenter referred to the proposal preamble, noting that such ''pressure build-ups are typically a sign of a malfunction of the underlying equipment,'' and PRDs ''are equipment installed specifically to release during malfunctions.'' Therefore, the commenter argued that the EPA cannot rely on any argument that equipment can fail, and that PRDs are necessary to address over-pressure and avoid a larger safety incident, and that the EPA has not relied on or demonstrated with any evidence that it is a valid concern. The commenter stated that even if it may be considered by the EPA in an administrative enforcement context or by the courts in an enforcement case, the EPA cannot authorize, up front, a whole set of problematic releases.

The commenter stated that the proposed malfunction standards for PRDs also break with prior Agency policy regarding malfunctions and for the use of case-by-case enforcement discretion to address malfunctions. The commenter stated that the Agency has repeatedly explained why case-by-case

[15] The commenter provided the following reference: See *U.S. Sugar Co.*, 830 F.3d at 607–08.

[16] The commenter provided the following reference: EPA, NESHAP, Portland Cement Summary of Public Comments and Responses at 124–25 (December 20, 2012) (''EPA's view is that the affirmative defense is part of the emission standard and defines two categories of violation.'').

[17] The commenter provided the following reference: ''Once excursion provisions are promulgated, an enforcement case no longer turns on the sharply defined issue of whether the plant discharged more pollutant than it was allowed to, but instead depends on murky determinations concerning the sequence of events in the plant, whether those events would have been avoidable if other equipment had been installed, and whether the discharge was within the intent of the excursion provision. Consequently, what Congress planned as a simple proceeding suitable for summary judgments would become a form of inquest into the nature of system malfunction.'' Weyerhaeuser, 590 F.2d at 1058.

evaluation of such issues is the only workable approach, and has repeatedly finalized prohibitions on uncontrolled releases from PRDs that vent directly to the atmosphere, fully aware that allowing such releases without an emission limit is a malfunction exemption prohibited both by the CAA and the Court's decision in *Sierra Club*. The commenter objected to this change and indicated that the EPA has failed to clearly explain this break with prior precedent.[18] The commenter noted that the EPA finalized similar provisions prohibiting PRD releases in MACT standards for Group IV Polymers and Resins, Pesticide Active Ingredient Manufacturing, and Polyether Polyols Production. The commenter further stated that the Court recently upheld this type of prohibition in *Mexichem Specialty Resins, Inc. v EPA*, 787 F.3d 544, 560–61 (DC Cir. 2015) and urged the EPA to finalize the standards for PRD as proposed. The commenter noted that in light of the EPA's prior policy, there can be "no doubt" that prohibiting uncontrolled PRD releases is lawful and consistent with the CAA. The commenter stated that the EPA has neither provided a reasoned explanation for the exemptions, nor acknowledged or explained the break in its prior policy against malfunction exemptions.

Response: We disagree that PRDs are simply bypasses for emissions that are subject to emission limits and controls and that they, thus, allow for uncontrolled emissions without violation or penalty. PRDs are generally safety devices that are used to prevent equipment failures that could pose a danger to the facility and facility workers. PRD releases are triggered by equipment or process malfunction. As such, they do not occur frequently or routinely and do not have the same emissions or release characteristics that routine emission sources have, even if the PRD and the vent are on the same equipment. This is because conditions during a PRD release (temperature, pressure, and vessel contents) differ from the conditions that exist during routine emissions from equipment. For example, emissions from ethylene process vents are predictable and must be characterized for emission potential and applicable control requirements prior to operation in the facility's NOCS report. In addition, PRDs must operate in a closed position and must be continuously monitored to identify when releases have occurred.

Under the final rule, if an affected PRD releases to the atmosphere, the owner or operator is required to perform root cause analysis and corrective action analysis as well as implement corrective actions and comply with the specified reporting requirements. The work practice standard also includes criteria for releases from affected PRDs that would result in a violation at 40 CFR 63.1107(h)(3)(v). We also note that a facility cannot simply choose to release pollutants from a PRD; any release that is caused willfully or caused by negligence or operator error is considered a violation.

We also disagree that PRDs are not independent emission points and instead function in venting emissions from other emission points during a malfunction. The commenter incorrectly suggests that the PRD work practice standard replaces the existing emission standards for connected equipment. The amendments to the NESHAP addressing PRDs do not affect requirements in the NESHAP that apply to equipment associated with the PRD. For example, compliance with the PRD provisions are required in addition to requirements for ethylene process vents for the same equipment. We also disagree with the comment that the standards for PRDs also break with prior agency policy regarding malfunctions. As commenters correctly note, the EPA has indeed both set work practice standards for PRDs and prohibited PRD releases in other source categories. As explained at proposal, however, the basis of the work practice standards promulgated for PRD releases in the Petroleum Refinery Sector RTR (80 FR 75178, December 1, 2015) were our underlying basis for the proposed work practice standards for PRD releases for facilities in the Ethylene Production source category (84 FR 54303, October 9, 2019).

The EPA evaluated the best performing facilities in determining the appropriate work practice standard, and as a result considered requirements established in the SCAQMD and BAAQMD rules and the Chemical Accident Prevent Provisions rule (84 FR 54303, October 9, 2019). These rules are the only rules we are aware of that address the infrequent and unpredictable nature of PRD releases. The EPA established a MACT standard based on these rules, and as part of this, we determined that either two or three PRD releases (depending on the root cause) from a single PRD in a 3-year period is a violation of the work practice standard.

Regarding citizen suits, we note that the regulations do not specify that the EPA Administrator would make a binding determination regarding whether a PRD release is in compliance or a violation, and the issue could be argued and resolved by a court in the context of a citizen suit.

Comment: We received comments in support of and against the work practice standards calling for root cause analysis and certain corrective actions. Some commenters supported the EPA's assessment that even at the best performing sources, releases from PRDs are likely to occur and cannot be safely routed to a control device. A commenter said the EPA's conclusion is consistent with company's experiences that pressure release actuation events, while infrequent, will occur even at properly designed and operated sources, including the best performers. Another commenter said that although they agree with the EPA's conclusion that it is not cost effective to control all PRD releases to the atmosphere, they do not agree that a root cause analysis and corrective action is a warranted work practice in every situation where a PRD relieves to the atmosphere and should not be required as part of the work practice standard for every PRD release. The commenter stated that under the Chemical Accident Prevention Program at 40 CFR 68.81(a), an incident investigation with root cause analysis is required only when the release is a catastrophic release or "could reasonably have resulted in a catastrophic release." The commenter said that a "catastrophic release" is defined as a "major uncontrolled emission, fire, or explosion, involving one or more regulated substances that presents imminent and substantial endangerment to public health and the environment." The commenter argued that the EPA has not established sufficient evidence in the background documents for this rulemaking to indicate that conducting a root cause analysis routinely for all PRD releases regardless of whether they meet the definition of "catastrophic release" is being performed by the best performing sources in the Ethylene Production source category.

Another commenter asserted that the EPA did not set a standard for PRDs that complies with the CAA requirements to assure both the "average emission limitation achieved" by the relevant best-performing sources and the

[18] The commenter provided the following references: See, *FCC* v. *Fox*, 556 U.S. 502, 516 (2009) (citing *Motor Vehicle Mfrs. Ass'n* v. *State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29, 42 (1983)) ("the requirement that an agency provide reasoned explanation for its action would ordinarily demand that it display awareness that it is changing position. An agency may not, for example, depart from a prior policy sub silentio or simply disregard rules that are still on the books."); see also *Encino* v. *Navarro*, 136 S.Ct. 2117, 2125–26 (2016) (reaffirming *FCC* v. *Fox* and noting the need to explain changes in agency policy based on actual facts and circumstances).

"maximum degree of emission reduction" that is "achievable" and, therefore, the EPA's proposed standards for PRDs do not meet the CAA sections 112(d)(2) and (3) test. The commenter states there is no discussion in the proposed rule of these factors for PRD releases, much less an analysis or determination that allowing one—two uncontrolled releases every 3 years (plus *force majeure* event releases) reflects, at minimum, the average of the best performers' reductions, and is the "maximum achievable degree of emission reduction."

The commenter stated that the TCEQ data that the EPA relies on clearly demonstrate that at least 23 percent (likely higher) of ethylene production facilities have zero atmospheric releases. The EPA reviewed roughly 30 percent of all operating ethylene production facilities (*i.e.*, seven of 26 ethylene production facilities) in the source category that were chosen at random. The commenter notes that only one of the events was actually an atmospheric PRD release on a properly operating PRD, which means that six facilities, or 23 percent of all operating ethylene production facilities, had no atmospheric releases on a properly operating PRD. The commenter noted that the number of ethylene production facilities with zero atmospheric releases is higher. The commenter also stated that the EPA has not explained why it relied on data from the petroleum refinery sector when data for ethylene production facilities is readily available and relied on elsewhere in the rulemaking. The commenter noted that compliance data for refineries from 2019 under the 2015 Petroleum Refineries NESHAP that is publicly available shows that the average uncontrolled PRD has far fewer releases to the atmosphere than the EPA claims that the best performers do, and that the best-performing uncontrolled PRDs are likely to have no atmospheric releases over a 3-year period. The commenter provided data from 40 CFR part 63, subpart CC compliance reports available on the websites of state environmental agencies in Louisiana, Texas, and Indiana for 10 refineries that collectively represented approximately 1,030 uncontrolled PRDs. The commenter noted that these data suggest that the EPA is proposing a number of releases that is exponentially higher than what has been demonstrated by real-world results from refineries thus far, and that the average uncontrolled PRD from the average refinery has far fewer than the two or three releases to the atmosphere over 5 years that the EPA claims that the best performers do.

A commenter argued that the EPA should set a zero emission limit for all PRDs because the best-performing PRD has no emissions to the atmosphere and the average of the best-performing 12 percent emit nothing to the atmosphere. The commenter stated that since the emission limitation for new sources is to reflect the performance of best performing PRD, new PRDs would presumably be required to capture and return discharges to process units; existing PRDs would have to meet the average of the best performing PRD, which could not be less stringent than the emission rate of the best performing PRD controlled by flares.

A commenter recommended that the EPA require new and modified atmospheric PRDs or existing PRDs on modified process equipment to be routed to the fuel gas system, flare, or other control device that achieves 98-percent destruction efficiency, pursuant to the MACT floor, as the best performing PRDs are controlled and the best performing process units are not equipped with any PRDs that are capable of venting emissions directly to the atmosphere. The commenter requested that the EPA propose that uncontrolled HAP emissions no longer be allowed from a PRD, and any releases from such devices would have to be routed through a control device.

The commenter further stated that the EPA's determination on PRDs was based on review of SCAQMD and BAAQMD adopted programs that attempt to reduce uncontrolled releases from PRDs, with generally more stringent emission limitations and LDAR programs than federal programs. The commenter stated that the EPA should adopt the best features of those programs in strengthening the NESHAP, but that these efforts were not subject to or aiming to satisfy the MACT floor requirements of the CAA, nor are they determinative of the MACT floor for PRDs, which must be based on the level of control "achieved in practice" by the relevant best-performing 12 percent of emission sources (for existing sources), or the best single source (for new sources).

According to the commenter the SCAQMD data on PRD releases from refineries shows that five out of eight (more than 50 percent) of regulated facilities reported zero atmospheric PRDs releases between 2010 and 2015 (the total number of refineries in the SCAQMD data do not include those operated by Alon Refining, which were idled in 2012). Thus, the commenter stated that the SCAQMD data demonstrate that the best performing PRDs do not release emissions directly to the atmosphere.

The commenter further stated that the EPA has not actually implemented the requirements of the BAAQMD and SCAQMD programs, and that the BAAQMD and SCAQMD programs are far more protective than the proposed rule. First, the commenter noted the BAAQMD requires that the operator must control (via flare or routing to a process unit) all PRDs that discharge for a second time in a 5-year period, whereas the SCAQMD rules include a similar provision, but offer as an alternative payment of a fee of $350,000 for each PRD that is not controlled. The commenter added that SCAQMD rules also require control of any PRD that has a single large release of greater than 2,000 pounds per day (lbs/day). Second, the commenter noted the BAAQMD and SCAQMD rules require the use of three redundant systems, including worker training, inspection, and maintenance, and two redundant "hardware" oriented systems. The third significant difference noted by the commenter is the greater number of releases allowed by the option to parse releases by "root cause."

The commenter also stated that the EPA appears to have inappropriately categorized PRDs in its analysis. The commenter noted that the EPA stated it intended to regulate "atmospheric" PRD releases, *i.e.*, releases to the atmosphere, including those vented to a control device, however, in the proposed rule, the EPA appears to have effectively ignored the "best controlled" PRDs (those routed to processes with no discharge to the environment) and the "well-controlled" PRDs (those routed to high quality flares) and determined the MACT floor based on PRDs with some lesser level of regulation. The commenter stressed that the CAA does not allow the EPA to categorize in this manner (see CAA section 112(d)(1) (allowing the EPA only to "distinguish among classes, types, and sizes of sources")).

Response: At proposal, the EPA provided extensive discussions on why it was appropriate to establish a work practice standard for PRDs that vent to atmosphere, under CAA section 112(h). 84 FR 54302–304. We explained that no ethylene production facility is subject to numeric emission limits for PRDs that vent to the atmosphere. We posited that the EPA did not believe it was appropriate to subject PRDs that vent to the atmosphere to numeric emission limits due to technological and economical limitations that make it impracticable to measure emissions from such PRDs. We further explained

that CAA section 112(h)(1) allows the EPA to prescribe a work practice standard or other requirement, consistent with the provisions of CAA section 112(d) or (f), in those cases where, in the judgment of the Administrator, it is not feasible to enforce an emission standard. Additionally, we explained that CAA section 112(h)(2)(B) defines the term ''not feasible'' in this context as meaning that ''the application of measurement technology to a particular class of sources is not practicable due to technological and economic limitations.'' We also noted that the basis of the work practice standards promulgated for PRD releases in the Petroleum Refinery Sector RTR (80 FR 75178, December 1, 2015) were our underlying basis for the proposed work practice standards at ethylene production facilities. 84 FR 54303.

As a general matter, CAA section 112 requires MACT for existing sources to be no less stringent than ''the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information). . .'' [(CAA section 112(d)(3)(A)]. ''Emission limitation'' is defined in the CAA as ''. . .a requirement established by the State or Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to operation or maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice, or operational standard promulgated under this chapter'' [CAA section 302(k)]. The EPA specifically considers existing rules from state and local authorities in identifying the ''emission limitations'' for a given source. We then identify the best performers to identify the MACT floor (the no less stringent than level) for that source. The EPA identified the requirements established in the SCAQMD and BAAQMD rules, and the Chemical Accident Prevent Provisions rule (40 CFR part 68) as the basis of the MACT floor because they represented the requirements applicable to the best performing sources. 84 FR 54303. Work practice standards are established in place of a numeric limit where it is not feasible to establish such limits. Thus, in a case such as this, where the EPA has determined that it is appropriate to establish work practice standards, it was reasonable for the EPA to identify the rules that impose the most stringent requirements and, thus, represent what applies to the best performers, and then to apply the requirements from those rules as MACT.

We recognize that the proposed standard for PRDs did not exactly mirror the SCAQMD, BAAQMD, or Chemical Accident Prevent Provisions rules exactly, but consider the requirements to be comparable. For example, we did not include a provision similar to that in the SCAQMD rule that excludes releases less than 500 lbs/day from the requirement to perform a root cause analysis; that provision in the SCAQMD rule does not include any other obligation to reduce the number of these events. Similarly, we did not include a provision that only catastrophic PRD releases must be investigated, as the commenter noted. Rather than allowing unlimited releases less than 500 lbs/day or that are not considered catastrophic, we require a root cause analysis for releases of any size. Because we count small releases that the SCAQMD rule does not regulate at all, we considered it reasonable to provide a higher number of releases prior to considering the owner or operator to be in violation of the work practice standard. We also adopted the three prevention measures requirements in the BAAQMD rule with limited modifications. After considering the PRD release event limits in both the SCAQMD and BAAQMD rules, we determined it was reasonable and appropriate to establish PRD requirements consistent with the flare work practice standard provisions in the SCAQMD and BAAQMD rules. Therefore, the final requirements provide that two or three events (depending on the root cause) from the same PRD in a 3-calendar-year period is a violation of the work practice standard. We also note that a facility cannot simply choose to release pollutants from a PRD; any release that is caused willfully or caused by negligence or operator error is considered a violation.

With respect to subcategorizing PRDs into those that vent to the atmosphere versus those that vent to a control system, we note that the only information we have available about when PRD releases occur at ethylene production facilities are from those PRDs that release directly to atmosphere. Regardless of whether we subcategorize or not, the best performing PRD for which we have information had one release over a 7-year period, and the backstop for how many releases are allowed to occur is based on this information over a long-term period of time given the random nature of when a PRD release might occur.

In summary, the work practice standard we are finalizing provides a comprehensive program to manage entire populations of PRDs and includes prevention measures, continuous monitoring, root cause analysis, and corrective actions, and addresses the potential for violations for multiple releases over a 3-year period. We followed the requirements of section 112 of the CAA, including CAA section 112(h), in establishing what work practice constituted the MACT floor.

Comment: Commenters requested that the EPA add a standard for minimizing emissions arising from degassing storage vessels that are complying with the control requirements in Table 7 to 40 CFR 63.1103(e). A commenter explained this request is due to their current interpretation of the proposed rule, wherein 40 CFR 63.1108(a)(5) no longer applies, and, thus, facilities may be required to vent to control devices at all times, even during degassing events. A commenter stated that the current rule requires facilities to address minimization of emissions from shutdown, which includes degassing, in the SSM plan required by 40 CFR 63.1111; and facilities have historically considered degassing emissions from shutdown of storage vessels to be covered by their SSM plans per 40 CFR 63.1108(a)(5) and relied on the language in 40 CFR 63.1108(a)(5) that back-up control devices are not required. The commenter requested the EPA subcategorize storage vessel degassing emissions as maintenance vents based on class, just as the EPA proposed for process vents. The commenter remarked that the Texas permit conditions presented in the memorandum, *Review of Regulatory Alternatives for Certain Vent Streams in the Ethylene Production Source Category*, apply equally to both maintenance vents and degassing of storage vessels and stated these permit conditions reflect what the best performers have implemented for storage vessel degassing (for both fixed and floating roofs) for both new and existing sources. According to the commenter, it is not feasible to control all the emissions from the entire storage vessel emptying and degassing event and at some point, the storage vessel must be opened and any remaining vapors vented to the atmosphere. The commenter further stated that this venting of vapors to the atmosphere is similar to the EPA description for maintenance vents in the preamble to the proposed rule.

The commenter stated that the EPA referenced the memorandum, *Impacts for Control Options for Storage Vessels at Petroleum Refineries* (Docket Item ID

No. EPA–HQ–OAR–2010–0682–0199), as part of the EMACT storage vessel technology review, in which the EPA concluded that degassing controls for storage vessels were not cost effective. Additionally, the commenter said that in the EPA's summary of public comments and responses to the 2014 proposal for the Petroleum Refinery NESHAP RTR, the EPA stated: ". . . if a control device is used to comply with this final rule during normal operations, then such a control device must be used at all times, including during degassing of the storage vessel. Any bypassing of emissions from being routed to a control device to being routed to the atmosphere would be considered a violation of the standard."

Response: We agree with the commenters that complying with the storage vessel requirements in Table 7 at 40 CFR 63.1103(e)(3)(b) and (c) is not appropriate during storage vessel degassing events and a separate standard for storage vessel degassing is necessary, due to the nature of the activity. With the removal of SSM requirements, as proposed, a standard specific to storage vessel degassing does not exist when storage vessels are using control devices to comply with the requirements in Table 7 to 40 CFR 63.1103(e). We also agree with the commenters that storage vessel degassing is similar to maintenance vents (*e.g.*, equipment openings) and that there must be a point in time when the storage vessel can be opened and any emissions vented to the atmosphere. In response to this comment, therefore, we reviewed available data to determine how the best performers are controlling storage vessel degassing emissions.

We are aware of the following three regulations that address storage vessel degassing, two in the state of Texas and the third for the SCAQMD in California. Texas has degassing provisions in the Texas Administrative Code (TAC) (30 TAC Chapter 115, Subchapter F, Division 3. See *https://texreg.sos.state.tx.us/public/readtac%24ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=115&sch=F&div=3&rl=Y*) and through permit conditions (as noted by the commenter, see *https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/mss/chem-mssdraftconditions.pdf*) while Rule 1149 contains the SCAMD degassing provisions (see *http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1149.pdf*). The TAC requirements are the least stringent and require control of degassing emissions until the vapor space concentration is less than 35,000 ppmv as methane or 50 percent of the LEL. The Texas permit conditions require control of degassing emissions until the vapor space concentration is less than 10 percent of the LEL or until the VOC concentration is less than 10,000 ppmv and SCAQMD Rule 1149 requires control of degassing emissions until the vapor space concentration is less than 5,000 ppmv as methane. The Texas permit conditions requiring compliance with 10 percent of the LEL and SCAQMD Rule 1149 control requirements are considered equivalent because 5,000 ppmv as methane equals 10 percent of the LEL for methane.

Ethylene production facilities located in Texas are subject to maintenance, startup, and shutdown (MSS) special permit conditions, but no ethylene production facilities are subject to the SCAQMD rule. Of the 26 currently operating ethylene production facilities, 17 are in Texas. Therefore, the Texas permit conditions relying on storage vessel degassing until 10 percent of LEL is achieved reflect what the best performers have implemented for storage vessel degassing and we considered this information as the MACT floor for both new and existing sources. Notably, this also aligns with the commenter's assessment.

We reviewed permit condition 6 (applicable to floating roof storage vessels) and permit condition 7 (applicable to fixed roof storage vessels) for key information that could be implemented to form the basis of a standard for storage vessel degassing that are required for facilities in Texas. The permit conditions require control of degassing emissions for floating roof and fixed roof storage vessels until the vapor space concentration is less than 10 percent of the LEL. The permit conditions also specify that facilities can also degas a storage vessel until they meet a VOC concentration of 10,000 ppmv, but we do not consider 10,000 ppmv to be equivalent to or as stringent as the compliance option to meet 10 percent of the LEL and are not including this as a compliance option. We also do not expect the best performers would be using this concentration for compliance, which is supported by the commenters recommending the requirements mimic the maintenance vent requirements and because the Texas permit conditions allow facilities to calibrate their LEL monitor using methane. Storage vessels may be vented to the atmosphere once the storage vessel degassing concentration threshold is met (*i.e.*, less than 10 percent of the LEL) and all standing liquid has been removed from the vessel to the extent practicable. These requirements are considered MACT for both new and existing sources and we are finalizing these requirements at 40 CFR 63.1103(e)(10).

We calculated the impacts due to controlling storage vessel degassing emissions by evaluating the population of storage vessels that are subject to control under Table 7 at 40 CFR 63.1103(e)(3)(b) and (c) and not located in Texas. Storage vessels in the Ethylene Production source category in Texas would already be subject to the degassing requirements, and there would not be additional costs or emissions reductions for these facilities. Our review of the CAA section 114 ICR survey responses, showed that most storage vessels are seldom degassed, with an average of 14 years between degassing events. Based on this average and the population of storage vessels that are not in Texas, we estimated two storage vessel degassing events would be newly subject to control each year. Controlling storage vessel degassing would reduce HAP emissions by 1.7 tpy, with a total annual cost of $9,400. See the technical memoranda, *Storage Vessel Degassing Model Development and Final Cost* and *Emissions Impacts for Ethylene Production NESHAP RTR*, which are available in Docket ID No. EPA–HQ–OAR–2017–0357 for details on the assumptions and methodologies used in this analysis.

We also considered options BTF, but we did not identify any and are not aware of storage vessel degassing control provisions more stringent than those discussed above and being finalized in this rule, therefore, no BTF option was evaluated.

Comment: We received comments in support of the proposed work practice standards for decoking operations. One commenter agreed with the EPA's conclusion to propose work practices for decoking operations pursuant to CAA section 112(h)(1) due to technological and economic limitations.

However, another commenter stated that the proposed requirements for new and existing decoking operations failed to meet the requirements of CAA sections 112(d)(2) and (3). The commenter stated that the EPA correctly proposes to remove the general SSM exemptions, but instead proposes to regulate HAP emissions from decoking operations through work practice standards rather than emission limits, and includes four alternate actions for decoking of radiant tubes. The commenter asserted that the EPA may not set work practice standards unless it is "not feasible to prescribe or enforce an emission standard." The commenter noted that the EPA provides no explanation or justification for why it chose four alternate practices, rather

than identifying the combination of practices that would eliminate HAP emissions, or reduce them to the furthest extent possible, consistent with CAA sections 112(d)(2) and (3). Additionally, the commenter stated that the EPA admits that the test data it collected from industry is unreliable, and inappropriately relies on this claim to posit that the Agency is entitled to promulgate a work practice standard. The commenter argued that the EPA's proposed standard is, therefore, inconsistent with the CAA's MACT requirements.

Response: We agree with the commenters who state that work practice standards are appropriate for decoking operations due to technological and economic limitations. We are adopting these proposed work practice standards into the final rule with only minor changes, which are discussed elsewhere in rulemaking record (see the document, *Summary of Public Comments and Responses for the Risk and Technology Review for Ethylene Production*, which is available in Docket ID No. EPA–HQ–OAR–2017–0357).

We disagree that the work practice standards for decoking operations fail to meet the requirements of CAA sections 112(d)(2) and (3) and are inconsistent with the CAA's MACT requirements. As explained in the preamble to the proposed rule, we are adopting work practice standards instead of numeric emission limits as it is ''not feasible to prescribe or enforce an emission standard'' for these emissions because ''the application of measurement technology to a particular class of sources is not practicable due to technological and economic limitations'' (see CAA section 112(h)(2)(B)). 84 FR 54307–309. The emissions stream generated from decoking operations (*i.e.*, the combination of coke combustion constituents, air, and steam from the radiant tube(s)) is very dilute with a high moisture content (*e.g.*, generally >95 percent water); and as explained in the preamble to the proposed rule, based on CAA section 114 ICR data, the majority of emissions measurements from the stream are not ''technologically practicable'' within the meaning of CAA section 112(h) because they are below detection limits. We have also previously reasoned that ''application of measurement methodologies'' under CAA section 112(h) must also mean that a measurement has some reasonable relation to what the source is emitting (*i.e.*, that the measurement yields a meaningful value). We have further explained that unreliable measurements raise issues of practicability, feasibility, and enforceability. Additionally, we have posited that the application of measurement methodology would also not be ''practicable due to . . . economic limitation'' within the meaning of CAA section 112(h) because it would result in cost expended to produce analytically suspect measurements. Refer to the Area Source Boiler Rule (75 FR 31906, June 4, 2010) and the NESHAP for the Wool Fiberglass Manufacturing source category (80 FR 45280 and 45312, July 29, 2015).

Moreover, the final rule, at 40 CFR 63.1103(e)(7), requires owners or operators to conduct daily inspections for flame impingement and also implement at least two of four other work practices to minimize coke combustion emissions from the decoking of the radiant tube(s) in each ethylene cracking furnace. Specifically, 40 CFR 63.1103(e)(7)(ii) through (v) requires owners or operators choose to conduct two of the following work practices: Monitor CO_2 concentration, monitor temperature, purge the radiant tube(s), and/or apply material to the interior of the radiant tube(s)). In addition, the final rule, at 40 CFR 63.1103(e)(8), requires owners or operators to conduct ethylene cracking furnace isolation valve inspections. With regard to the comment that the EPA provided no explanation or justification for why we chose the four other work practices, we believe each control measure is feasible and effective in reducing HAP emissions from decoking an ethylene cracking furnace. As explained in the preamble to the proposed rule (84 FR 54278, October 9, 2019), based on discussions with industry, as well as a review of facility-specific SSM plans that were submitted to the EPA in response to the CAA section 114 request, we determined that owners or operators already conduct work practices to minimize emissions due to coke combustion. We determined the measures to be consistent with CAA section 112(d) controls and reflect a level of performance analogous to a MACT floor; and we believe that it is most effective for sources to determine the best practices from the list of options. Regarding the comment as to unreliable data being used to support setting standards, as previously noted, the EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem and courts generally defer to the agency's decision to proceed on the basis of imperfect scientific information, rather than to ''invest the resources to conduct the perfect study.'' *Sierra Club* v. *EPA*, 167 F. 3d 658, 662 (D.C. Cir. 1999)(If EPA were required to gather exhaustive data about a problem for which gathering such data is not yet feasible, the agency would be unable to act even if such inaction had potentially significant consequences . . . [A]n agency must make a judgment in the face of a known risk of unknown degree.'' *Mexichem Specialty Resins, Inc.*, 787 F.3d. 561.).

4. What is the rationale for our final approach and final decisions for the revisions pursuant to CAA sections 112(d)(2) and (3)?

We evaluated all of the comments on the EPA's proposed amendments to revisions for flares used as APCDs, clarifications for periods of SSM and bypasses, including PRD releases, bypass lines on closed vent systems, in situ sampling systems, maintenance activities, certain gaseous streams routed to a fuel gas system, and associated decoking operations for ethylene cracking furnaces (*i.e.*, the decoking of ethylene cracking furnace radiant tubes). For the reasons explained in the proposed rule (84 FR 54278, October 9, 2019), we determined that the flare amendments are needed to ensure that flares used as APCD achieve the required level of MACT control and meet 98 percent destruction efficiency at all times as well as to ensure that CAA section 112 standards apply at all times. Similarly, the clarifications for periods of SSM and bypasses, including PRD releases, bypass lines on closed vent systems, in situ sampling systems, maintenance activities, certain gaseous streams routed to a fuel gas system, and work practice standards associated decoking operations for ethylene cracking furnaces are needed to be consistent with *Sierra Club* v. *EPA, 551 F.3d* 1019 (D.C. Cir. 2008) to ensure that CAA section 112 standards apply at all times. More information and rationale concerning all the amendments we are finalizing pursuant to CAA sections 112(d)(2) and (3) is in the preamble to the proposed rule (84 FR 54278, October 9, 2019), section IV.B.3 of this preamble, and in the comments and our specific responses to the comments in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category*, which is available in the docket for this action. Therefore, we are finalizing the proposed provisions for flares (except that we are not finalizing the work practice standard for velocity exceedances for flares operating above their smokeless capacity), finalizing the proposed clarifications for periods of

SSM and bypasses, including PRD releases, bypass lines on closed vent systems, in situ sampling systems, maintenance activities, certain gaseous streams routed to a fuel gas system, and finalizing the proposed work practice standards for the decoking of ethylene cracking furnaces with only minor editorial corrections and technical clarifications.

D. Amendments Addressing Emissions During Periods of SSM

1. What amendments did we propose to address emissions during periods of SSM?

We proposed amendments to the EMACT standards to remove and revise provisions related to SSM that are not consistent with the requirement that the standards apply at all times. In a few instances, we are finalizing alternative standards for certain emission points during periods of SSM to ensure a continuous CAA section 112 standard applies ''at all times,'' (see section IV.C); however for the majority of emission points in the Ethylene Production source category, we proposed eliminating the SSM exemptions and to have the MACT standards apply at all times. More information concerning the elimination of SSM provisions is in the preamble to the proposed rule (84 FR 54278, October 9, 2019).

2. How did the SSM provisions change since proposal?

We are finalizing the SSM provisions as proposed (84 FR 54278, October 9, 2019) with only minor changes to 40 CFR 63.1103(e)(9) to sufficiently address the SSM exemption provisions from subparts referenced by the EMACT standards.

3. What key comments did we receive on the SSM revisions and what are our responses?

While we are finalizing some alternative standards in this final rule for certain emission points during periods of SSM to ensure a continuous CAA section 112 standard applies ''at all times,'' (see section IV.C), we also proposed eliminating the SSM exemptions for the majority of emission points in the Ethylene Production source category. We did not receive many substantive comments on the removal of these exemptions; however, the comments and our specific responses to these items can be found in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category,* available in the docket for this action.

4. What is the rationale for our final approach and final decisions to address emissions during periods of SSM?

We evaluated all of the comments on the EPA's proposed amendments to the SSM provisions. For the reasons explained in the proposed rule (84 FR 54278, October 9, 2019), we determined that these amendments, which remove and revise provisions related to SSM, are necessary to be consistent with the requirement that the standards apply at all times. More information concerning the amendments we are finalizing for SSM is in the preamble to the proposed rule (84 FR 54278, October 9, 2019) and in the comments and our specific responses to the comments in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category,* available in the docket for this action. Therefore, we are finalizing our approach for the SSM provisions as proposed.

E. Technical Amendments to the EMACT Standards

1. What other amendments did we propose for the Ethylene Production source category?

We proposed that owners or operators submit electronic copies of required performance test results and reports and NOCS reports through the EPA's CDX using the CEDRI; and we proposed two broad circumstances in which we may provide extension to these requirements. We proposed at 40 CFR 63.1110(a)(10)(iii) that an extension may be warranted due to outages of the EPA's CDX or CEDRI that precludes an owner or operator from accessing the system and submitting required reports. We also proposed at 40 CFR 63.1110(a)(10)(iv) that an extension may be warranted due to a *force majeure* event, such as an act of nature, act of war or terrorism, or equipment failure or safety hazards beyond the control of the facility.

To correct a disconnect between having a NPDES permit that meets certain allowable discharge limits at the discharge point of a facility *(e.g.,* outfall) and being able to adequately identify a leak, we proposed the removal of the exemption at 40 CFR 63.1084(c) for once-through heat exchange systems to comply with 40 CFR 63.1085 and 40 CFR 63.1086. We also proposed the removal of the exemption at 40 CFR 63.1084(d) because the provision lacks the specificity of where a sample must be taken to adequately find and quantify a leak from a once-through heat exchange system.

Further, to provide flexibility and reduce the burden on ethylene production facilities, we proposed overlap provisions at 40 CFR 63.1100(g) allowing an owner or operator subject to both the equipment leak EMACT standards and 40 CFR part 60, subpart VVa to comply with the EMACT standards only (instead of complying with both standards), provided the owner or operator also complies with the calibration drift assessment provisions at 40 CFR 60.485a(b)(2).

Finally, we proposed revisions for clarifying text or correcting typographical errors, grammatical errors, and cross-reference errors. These editorial corrections and clarifications are summarized in Table 9 of the proposal. See 84 FR 54278, October 9, 2019.

2. How did the other amendments for the Ethylene Production source category change since proposal?

Since proposal, the electronic reporting requirements and the technical and editorial corrections in Table 9 of the proposal (see 84 FR 54278, October 9, 2019) have not changed and we are finalizing all the proposed requirements. Additionally, we are correcting an error in the final rule to clarify that Periodic Reports must also be submitted electronically (*i.e.,* through the EPA's CDX website using the appropriate electronic report template for this subpart) beginning no later than the compliance dates specified in 40 CFR 63.1102(c) or once the report template has been available on the CEDRI website for at least 1 year, whichever date is later. We are also including several additional minor clarifying edits in the final rule based on comments received during the public comment period.

3. What key comments did we receive on the other amendments for the Ethylene Production source category and what are our responses?

We did not receive many substantive comments on the other amendments in the Ethylene Production RTR proposal. These items generally include issues related to electronic reporting, removal of the allowance to use NPDES permits to identify leaks for heat exchange systems, overlap provisions for equipment leaks, and revisions that we proposed for clarifying text or correcting typographical errors, grammatical errors, and cross-reference errors. The comments and our specific responses to these items can be found in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the*

Ethylene Production Source Category, available in the docket for this action.

4. What is the rationale for our final approach and final decisions for the other amendments for the Ethylene Production source category?

Based on the comments received for these other amendments, we are generally finalizing all proposed requirements. In a few instances (*e.g.*, overlap provisions for equipment leaks), we received comments such that minor editorial corrections and technical clarifications are being made, and our rationale for these corrections and technical clarifications can be found in the document, *Summary of Public Comments and Responses for the Risk and Technology Reviews for the Ethylene Production Source Category*, available in the docket for this action.

V. Summary of Cost, Environmental, and Economic Impacts and Additional Analyses Conducted

A. What are the affected facilities?

As of January 1, 2017, there were 26 ethylene production facilities currently operating that are major sources of HAP, and the EPA is aware of five ethylene production facilities under construction. As such, we estimate that 31 ethylene production facilities will be subject to the final amendments within the next 3 years. A complete list of facilities that are currently subject, or will be subject, to the EMACT standards is available in Appendix A of the memorandum, *Review of the RACT/BACT/LAER Clearinghouse Database for the Ethylene Production Source Category*, in Docket ID No. EPA–HQ–OAR–2017–0357.

B. What are the air quality impacts?

V. Summary of Cost, Environmental, and Economic Impacts and Additional Analyses Conducted

A. What are the affected facilities?

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B. What are the air quality impacts?

We estimate HAP emissions reductions of 29 tpy and VOC emissions reductions of 232 tpy as a result of the final amendments for storage vessels, heat exchange systems, and decoking operations for ethylene cracking furnaces. These emissions reductions do not consider the potential excess emissions reductions from flares that could result from the final monitoring requirements; we estimate flare excess emissions reductions of 1,430 tpy HAP and 13,020 tpy VOC. When considering the flare excess emissions, the total emissions reductions as a result of the final amendments are estimated at 1,459 tpy HAP and 13,252 tpy VOC. These emissions reductions are documented in the following memoranda, which are available in Docket ID No. EPA–HQ–OAR–2017–0357: *Assessment of Work Practice Standards for Ethylene Cracking Furnace Decoking Operations Located in the Ethylene Production Source Category; Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems in the Ethylene Production Source Category; Control Option Impacts for Flares Located in the Ethylene Production Source Category;* and *Final Cost and Emissions Impacts for Ethylene Production NESHAP RTR.*

C. What are the cost impacts?

We estimate the total capital costs of the final amendments to be $47.2 million and the total annualized costs to be about $10.4 million in 2016 dollars (annualized costs include annual recovery credits of $180,000). The present value in 2020 of the costs is $87.5 million at a discount rate of 3 percent and $74.9 million at 7 percent. Calculated as an equivalent annualized value, which is consistent with the present value of costs, the costs are $9.4 million at a discount rate of 7 percent and $10.9 million at a discount rate of 3 percent. These cost estimates are included in the memorandum, *Economic Impact Analysis for Ethylene Production NESHAP RTR Final*, which is available in the docket for this action. The costs are associated with the final amendments for flares, PRDs, maintenance (equipment openings), storage vessels, heat exchange systems, and decoking operations for ethylene cracking furnaces. Costs for flares include purchasing analyzers, monitors, natural gas and steam, developing a flare management plan, and performing root cause analysis and corrective action (details are available in the memorandum, *Control Option Impacts for Flares Located in the Ethylene Production Source Category*, in Docket ID No. EPA–HQ–OAR–2017–0357). Costs for PRDs were developed based on compliance with the final work practice standard and include implementation of three prevention measures, performing root cause analysis and corrective action, and purchasing PRD monitors (details are available in the memorandum, *Review of Regulatory Alternatives for Certain Vent Streams in the Ethylene Production Source Category*, in Docket ID No. EPA–HQ–OAR–2017–0357). Maintenance costs were estimated to document equipment opening procedures and to document circumstances under which the alternative maintenance vent limit is used (details are available in the memorandum, *Review of Regulatory Alternatives for Certain Vent Streams in the Ethylene Production Source Category*, in Docket ID No. EPA–HQ–OAR–2017–0357). Heat exchange systems costs include the use of the Modified El Paso Method to monitor for leaks (details are available in the memorandum, *Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems in the Ethylene Production Source Category*, in Docket ID No. EPA–HQ–OAR–2017–0357). The costs associated with decoking operations for ethylene cracking furnaces include conducting isolation valve inspections and conducting flame impingement firebox inspections (details are available in the memorandum, *Assessment of Work Practice Standards for Ethylene Cracking Furnace Decoking Operations Located in the Ethylene Production Source Category*, in Docket ID No. EPA–HQ–OAR–2017–0357). Costs for controlling storage vessel degassing emissions are discussed in the memorandum, *Final Cost and Emissions Impacts for Ethylene Production NESHAP RTR*, which is available in the docket for this action.

D. What are the economic impacts?

The EPA conducted economic impact analyses for the amendments to the final rule, as detailed in the memorandum, *Economic Impact Analysis for Ethylene Production NESHAP RTR Final*, which is available in the docket for this action. The economic impacts of the amendments to the final rule are calculated as the percentage of total annualized costs incurred by affected parent owners to their annual revenues. This ratio of total annualized costs to annual revenues provides a measure of the direct economic impact to parent owners of ethylene production facilities while presuming no passthrough of costs to ethylene consumers. We estimate that none of the 16 parent owners affected by the amendments to the final rule will incur total annualized costs of 0.02 percent or greater of their revenues. Of the 16 parent owners, none

of them is a small business according to the Small Business Administration's small business size standard (for NAICS 325110, 1,000 employees or less). Product recovery, which is estimated as an impact of the final amendments, is included in the estimate of total annualized costs that is an input to the economic impact analysis. Thus, these economic impacts are quite low for affected companies and the ethylene production industry, and consumers of ethylene should experience minimal price changes.

E. What analysis of environmental justice did we conduct?

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

To examine the potential for any environmental justice issues that might be associated with the source category, we performed a demographic analysis, which is an assessment of risks to individual demographic groups of the populations living within 5 kilometers (km) and within 50 km of the facilities. In the analysis, we evaluated the distribution of HAP-related cancer and noncancer risks from the Ethylene Production source category across different demographic groups within the populations living near facilities.

Our analysis of the demographics of the population with estimated risks greater than 1-in-1 million indicates potential disparities in risks between demographic groups, including the African American, Hispanic or Latino, Over 25 Without a High School Diploma, and Below the Poverty Level groups. In addition, the population living within 50 km of the ethylene production facilities has a higher percentage of minority, lower income, and lower education people when compared to the nationwide percentages of those groups. However, acknowledging these potential disparities, the risks for the source category were determined to be acceptable, and emissions reductions from the final amendments will benefit these groups the most.

The methodology and the results of the demographic analysis are presented in a technical report, *Risk and Technology Review—Analysis of Demographic Factors for Populations Living Near Ethylene Production Source Category Operations,* available in the docket for this action.

F. What analysis of children's environmental health did we conduct?

The EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are summarized in section IV.A of this preamble and are further documented in the risk report, *Residual Risk Assessment for the Ethylene Production Source Category in Support of the 2020 Risk and Technology Review Final Rule,* available in the docket for this action.

VI. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders.*

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

This action is not a significant regulatory action and was, therefore, not submitted to the Office of Management and Budget (OMB) for review. The EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis, *Economic Impact Analysis for Ethylene Production NESHAP RTR Final,* is available in the docket for this rule.

B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This action is not an Executive Order 13771 regulatory action because this action is not significant under Executive Order 12866.

C. Paperwork Reduction Act (PRA)

The information collection activities in this rule have been submitted for approval to OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 1983.10. The OMB Control Number is 2060–0489. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here. The information collection requirements are not enforceable until OMB approves them.

We are finalizing amendments that change the reporting and recordkeeping requirements for several emission sources at ethylene production facilities (*e.g.,* flares, decoking operations for ethylene cracking furnaces, heat exchangers, PRDs, storage vessels). The final amendments also require electronic reporting, remove the malfunction exemption, and impose other revisions that affect reporting and recordkeeping. This information would be collected to assure compliance with 40 CFR part 63, subparts XX and YY.

Respondents/affected entities: Owners or operators of ethylene production facilities.

Respondent's obligation to respond: Mandatory (40 CFR part 63, subparts XX and YY).

Estimated number of respondents: 31 (total).

Frequency of response: Semiannual and annual.

Total estimated burden: 8,500 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $4,410,000 (per year), which includes $3,660,000 annualized capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. When OMB approves this ICR, the Agency will announce that approval in the **Federal Register** and publish a technical amendment to 40 CFR part 9 to display the OMB control number for the approved information collection activities in this final rule.

D. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. There are no small entities affected in this regulated industry. See the document, *Economic Impact Analysis for Ethylene Production NESHAP RTR Final,* available in the docket for this action.

E. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments or the private sector.

F. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the

relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

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

This action does not have tribal implications as specified in Executive Order 13175. None of the ethylene production facilities that have been identified as being affected by this final action are owned or operated by tribal governments or located within tribal lands. Thus, Executive Order 13175 does not apply to this action.

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

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in sections IV.A of this preamble.

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

This action is not subject to Executive Order 13211 because it is not a significant regulatory action under Executive Order 12866.

J. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR Part 51

This rulemaking involves technical standards. As discussed in the preamble of the proposal, the EPA conducted searches for the EMACT standards through the Enhanced National Standards Systems Network Database managed by the American National Standards Institute (ANSI). We also contacted voluntary consensus standards (VCS) organizations and accessed and searched their databases. We conducted searches for EPA Methods 1, 1A, 2, 2A, 2C, 2D, 2F, 2G, 3B, 4, 5, 18, 21, 22, 25, 25A, 27, and 29 of 40 CFR part 60, appendix A, EPA Methods 301, 316, and 320 of 40 CFR part 63, appendix A, and EPA Methods 602 and 624 of 40 CFR part 136, appendix A. During the EPA's VCS search, if the title or abstract (if provided) of the VCS described technical sampling and analytical procedures that are similar to the EPA's reference method, the EPA reviewed it as a potential equivalent method.

The EPA incorporates by reference VCS ANSI/ASME PTC 19.10–1981 (Part 10), ''Flue and Exhaust Gas Analyses,'' as an acceptable alternative to EPA Methods 3A and 3B for the manual procedures only and not the instrumental procedures. This method is used to quantitatively determine the gaseous constituents of exhausts including oxygen, CO_2, carbon monoxide, nitrogen, sulfur dioxide, sulfur trioxide, nitric oxide, nitrogen dioxide, hydrogen sulfide, and hydrocarbons, and is available at the American National Standards Institute (ANSI), 1899 L Street NW, 11th floor, Washington, DC 20036 and the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990. See *https://wwww.ansi.org* and *https://www.asme.org*.

Also, the EPA incorporates by reference VCS ASTM D6420–18, ''Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry,'' as an acceptable alternative to EPA Method 18 with the following caveats. This ASTM procedure uses a direct interface gas chromatograph/mass spectrometer to identify and quantify VOC and has been approved by the EPA as an alternative to EPA Method 18 only when the target compounds are all known and the target compounds are all listed in ASTM D6420–18 as measurable. ASTM D6420–18 should not be used for methane and ethane because the atomic mass is less than 35; and ASTM D6420–18 should never be specified as a total VOC method.

In addition, the EPA incorporates by reference VCS ASTM D6348–12e1, ''Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform (FTIR) Spectroscopy,'' as an acceptable alternative to EPA Method 320 with caveats requiring inclusion of selected annexes to the standard as mandatory. This ASTM procedure uses an extractive sampling system that routes stationary source effluent to an FTIR spectrometer for the identification and quantification of gaseous compounds. The test plan preparation and implementation in the Annexes to ASTM D 6348–03, Sections A1 through A8 are mandatory; therefore, the EPA incorporates by reference, ''Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy.'' This ASTM procedure also uses an extractive sampling system and FTIR spectrometer for the identification and quantification of gaseous compounds. The percent (%) R must be determined for each target analyte (Equation A5.5) when using ASTM D6348–03, Annex A5 (Analyte Spiking Technique). In order for the test data to be acceptable for a compound, %R must be $70\% \geq R \leq 130\%$. If the %R value does not meet this criterion for a target compound, the test data is not acceptable for that compound and the test must be repeated for that analyte (*i.e.*, the sampling and/or analytical procedure should be adjusted before a retest). The %R value for each compound must be reported in the test report, and all field measurements must be corrected with the calculated %R value for that compound by using the following equation:

Reported Results = (Measured Concentration in the Stack × 100)/%R.

The three ASTM methods (ASTM D6420–18, ASTM D6348–12e1, and ASTM D 6348–03) newly incorporated by reference in this rule are available to the public for free viewing online in the Reading Room section on ASTM's website at *https://www.astm.org/READINGLIBRARY/*. In addition to this free online viewing availability on ASTM's website, hard copies and printable versions are available for purchase from ASTM at *http://www.astm.org/*.

Also, the EPA decided not to include 17 other VCS; these methods are impractical as alternatives because of the lack of equivalency, documentation, validation date, and other important technical and policy considerations. The search and review results have been documented and are in the memorandum, *Voluntary Consensus Standard Results for National Emission Standards for Hazardous Air Pollutants for Ethylene Production RTR*, which is available in the docket for this action.

Under 40 CFR 63.7(f) and 40 CFR 63.8(f) (in subpart A—General Provisions), a source may apply to the EPA for permission to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications, or procedures in the final rule or any amendments.

Finally, although not considered a VCS, the EPA incorporates by reference, ''Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)'' (SW–846–8260B) and ''Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)'' (SW–846–8270D) into 40 CFR 63.1107(a); and ''Air Stripping Method (Modified El Paso

Method) for Determination of Volatile Organic Compound Emissions from Water Sources,'' into 40 CFR 63.1086(e) and 40 CFR 63.1089(d). Each of these methods is used to identify organic HAP in water; however, SW–846–8260B and SW–846–8270D use water sampling techniques and the Modified El Paso Method uses an air stripping sampling technique. The SW–846 methods are available from the EPA at *https://www.epa.gov/hw-sw846* while the Modified El Paso Method is available from TCEQ at *https://www.tceq.texas.gov/assets/public/compliance/field_ops/guidance/samplingappp.pdf.*

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

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994).

The documentation for this decision is contained in section IV.A of this preamble and in the technical report, *Risk and Technology Review—Analysis of Demographic Factors for Populations Living Near Ethylene Production Source Category Operations*, available in the docket for this action.

L. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 63

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

Dated: March 12, 2020.

Andrew R. Wheeler,

Administrator.

For the reasons set forth in the preamble, the EPA is amending 40 CFR part 63 as follows:

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

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

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

Subpart A—General Provisions

■ 2. Section 63.14 is amended by:
■ a. Revising paragraphs (e)(1) and (h)(18), (83), and (85);
■ b. Redesignating paragraphs (h)(92) through (112) as paragraphs (h)(93) through (113);
■ c. Adding new paragraph (h)(92);
■ d. Revising paragraphs (n)(12) and (13); and
■ e. Revising paragraph (t)(1).

The revisions and addition read as follows:

§ 63.14 Incorporations by reference.

* * * * *

(e) * * *

(1) ANSI/ASME PTC 19.10–1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for §§ 63.309(k), 63.457(k), 63.772(e) and (h), 63.865(b), 63.997(e), 63.1282(d) and (g), 63.1625(b), 63.3166(a), 63.3360(e), 63.3545(a), 63.3555(a), 63.4166(a), 63.4362(a), 63.4766(a), 63.4965(a), 63.5160(d), table 4 to subpart UUUU, table 3 to subpart YYYY, 63.9307(c), 63.9323(a), 63.11148(e), 63.11155(e), 63.11162(f), 63.11163(g), 63.11410(j), 63.11551(a), 63.11646(a), and 63.11945, table 5 to subpart DDDDD, table 4 to subpart JJJJJ, table 4 to subpart KKKKK, tables 4 and 5 of subpart UUUUU, table 1 to subpart ZZZZZ, and table 4 to subpart JJJJJJ.

* * * * *

(h) * * *

(18) ASTM D1946–90 (Reapproved 1994), Standard Method for Analysis of Reformed Gas by Gas Chromatography, 1994, IBR approved for §§ 63.11(b), 63.987(b), and 63.1412.

* * * * *

(83) ASTM D6348–03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, including Annexes A1 through A8, Approved October 1, 2003, IBR approved for §§ 63.457(b), 63.997(e), and 63.1349, table 4 to subpart DDDD, table 4 to subpart UUUU, table 4 subpart ZZZZ, and table 8 to subpart HHHHHHH.

* * * * *

(85) ASTM D6348–12e1, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, Approved February 1, 2012, IBR approved for §§ 63.997(e) and 63.1571(a) and Table 4 to subpart UUUU.

* * * * *

(92) ASTM D6420–18, Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, Approved November 1, 2018, IBR approved for § 63.987(b) and § 63.997(e).

* * * * *

(n) * * *

(12) SW–846–8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2, December 1996, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.1107(a), 63.11960, 63.11980, and table 10 to subpart HHHHHHHH.

(13) SW–846–8270D, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 4, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.1107(a), 63.11960, 63.11980, and table 10 to subpart HHHHHHHH.

* * * * *

(t) * * *

(1) ''Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources,'' Revision Number One, dated January 2003, Sampling Procedures Manual, Appendix P: Cooling Tower Monitoring, January 31, 2003, IBR approved for §§ 63.654(c) and (g), 63.655(i), 63.1086(e), 63.1089(d), and 63.11920.

* * * * *

Subpart SS—National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process

■ 3. Section 63.987 is amended by revising parameter ''Dj'' of Equation 1 in paragraph (b)(3)(ii) to read as follows:

§ 63.987 Flare requirements.

* * * * *

(b) * * *

(3) * * *

(ii) * * *

* * * * *

Dj = Concentration of sample component j, in parts per million by volume on a wet basis, as measured for organics by Method 18 of 40 CFR part 60, appendix A, or by ASTM D6420–18 (incorporated by reference, see § 63.14) under the conditions specified in § 63.997(e)(2)(iii)(D)(*1*) through (*3*). Hydrogen and carbon monoxide are measured by ASTM D1946–90

(Reapproved 1994) (incorporated by reference, see § 63.14); and

* * * * *

■ 4. Section 63.997 is amended by revising paragraphs (e)(2)(iii) introductory text, (e)(2)(iii)(C)(*1*), (e)(2)(iii)(D), (e)(2)(iv) introductory text, and (e)(2)(iv)(F) and (I) to read as follows:

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

* * * * *

(e) * * *

(2) * * *

(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. The ASTM D6420–18 (incorporated by reference, see § 63.14) may be used in lieu of Method 18 of 40 CFR part 60, appendix A, under the conditions specified in paragraphs (e)(2)(iii)(D)(*1*) through (*3*) of this section. 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), (B), (D), and (E) of this section shall be used to calculate parts per million by volume concentration. The calculated concentration shall be corrected to 3 percent oxygen using the procedures specified in paragraph (e)(2)(iii)(C) of this section if a combustion device is the control device and supplemental combustion air is used to combust the emissions.

* * * * *

(C) * * *

(*1*) The emission rate correction factor (or excess air), integrated sampling and analysis procedures of Method 3B of 40 CFR part 60, appendix A, or the manual method in ANSI/ASME PTC 19.10–1981—Part 10 (incorporated by reference, see § 63.14), shall be used to determine the oxygen concentration. The sampling site shall be the same as that of the organic regulated material or organic compound samples, and the samples shall be taken during the same time that the organic regulated material or organic compound samples are taken.

* * * * *

(D) To measure the total organic regulated material concentration at the outlet of a control device, use Method 18 of 40 CFR part 60, appendix A, or ASTM D6420–18 (incorporated by reference, see § 63.14). If you have 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 D6420–18 for the regulated material compounds present at the inlet of the control device. The method ASTM D6420–18 may be used only under the conditions specified in paragraphs (e)(2)(iii)(D)(*1*) through (*3*) of this section.

(*1*) If the target compounds are all known and are all listed in Section 1.1 of ASTM D6420–18 as measurable.

(*2*) ASTM D6420–18 may not be used for methane and ethane.

(*3*) ASTM D6420–18 may not be used as a total VOC method.

* * * * *

(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. The method ASTM D6420–18 (incorporated by reference, see § 63.14) may be used in lieu of Method 18 of 40 CFR part 60, appendix A, under the conditions specified in paragraphs (e)(2)(iii)(D)(*1*) through (*3*) of this section. 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 (I) 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 D6420–18 (incorporated by reference, see § 63.14), under the conditions specified in paragraphs (e)(2)(iii)(D)(*1*) through (*3*) of this section. In conducting the performance test, collect and analyze samples as specified in Method 18 or ASTM D6420–18. 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.

* * * * *

(I) If the uncontrolled or inlet gas stream to the control device contains formaldehyde, you must conduct emissions testing according to paragraphs (e)(2)(iv)(I)(*1*) through (*3*) of this section.

(*1*) Except as specified in paragraph (e)(2)(iv)(I)(*3*) of this section, 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*) Except as specified in paragraph (e)(2)(iv)(I)(*3*) of this section, 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 of 40 CFR part 60, appendix A.

(*3*) You may elect to use ASTM D6348–12e1 (incorporated by reference, § 63.14) in lieu of Method 316 or 320 of appendix A to this part as specified in paragraph (e)(2)(iv)(I)(*1*) or (*2*) of this section. To comply with this paragraph, the test plan preparation and implementation in the Annexes to ASTM D6348–03 (incorporated by reference, see § 63.14) Sections A1 through A8 are mandatory; the percent (%) R must be determined for each target analyte using Equation A5.5 of ASTM D6348–03 Annex A5 (Analyte Spiking Technique); and in order for the test data to be acceptable for a compound, the %R must be $70\% \geq R \leq 130\%$. If the %R value does not meet this criterion for a target compound, then the test data is not acceptable for that compound and the test must be repeated for that analyte (*i.e.*, the sampling and/or analytical procedure should be adjusted before a retest). The %R value for each compound must be

reported in the test report, and all field measurements must be corrected with the calculated %R value for that compound by using the following equation:

Reported Results = (Measured Concentration in the Stack × 100)/ %R.

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

■ 5. Section 63.1081 is revised to read as follows:

§ 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). Each heat exchange system which is part of an ethylene production affected source also must comply with paragraph (a) of this section. Each waste stream which is part of an ethylene production affected source also must comply with paragraph (b) of this section.

(a) Each heat exchange system that is part of an ethylene production affected source that commenced construction or reconstruction on or before October 9, 2019, must be in compliance with the heat exchange system requirements specified in §§ 63.1084(f), 63.1085(e) and (f), 63.1086(e), 63.1087(c) and (d), 63.1088(d), and 63.1089(d) and (e) upon initial startup or July 6, 2023, whichever is later. Each heat exchange system that is part of an ethylene production affected source that commences construction or reconstruction after October 9, 2019, must be in compliance with the heat exchange system requirements specified in §§ 63.1084(f), 63.1085(e) and (f), 63.1086(e), 63.1087(c) and (d), 63.1088(d), and 63.1089(d) and (e) upon initial startup, or July 6, 2020, whichever is later.

(b) Each waste stream that is part of an ethylene production affected source that commenced construction or reconstruction on or before October 9, 2019, must be in compliance with the flare requirements specified in § 63.1095(a)(1)(vi) and (b)(3) upon initial startup or July 6, 2023, whichever is later. Each waste stream that is part of an ethylene production affected source that commences construction or reconstruction after October 9, 2019, must be in compliance with the flare requirements specified in § 63.1095(a)(1)(vi) and (b)(3) upon initial startup, or July 6, 2020, whichever is later.

■ 6. Section 63.1082 is amended in paragraph (b) by revising definitions for ''Dilution steam blowdown waste stream,'' and ''Spent caustic waste stream'' to read as follows:

§ 63.1082 What definitions do I need to know?

* * * * *

(b) * * *

Dilution steam blowdown waste stream means any continuously flowing process wastewater stream resulting from the quench and compression of cracked gas (the cracking furnace effluent) at an ethylene production unit and is discharged from the unit. This stream typically includes the aqueous or oily-water stream that results from condensation of dilution steam (in the cracking furnace quench system), blowdown from dilution steam generation systems, and aqueous streams separated from the process between the cracking furnace and the cracked gas dehydrators. The dilution steam blowdown waste stream does not include blowdown that has not contacted HAP-containing process materials. Before July 6, 2023, the dilution steam blowdown waste stream does not include dilution steam blowdown streams generated from sampling, maintenance activities, or shutdown purges. Beginning on July 6, 2023, the dilution steam blowdown streams generated from sampling, maintenance activities, or shutdown purges are included in the definition of dilution steam blowdown waste stream.

* * * * *

Spent caustic waste stream means the continuously flowing process wastewater stream that results from the use of a caustic wash system in an ethylene production unit. A caustic wash system is commonly used at ethylene production units to remove acid gases and sulfur compounds from process streams, typically cracked gas. Before July 6, 2023, the spent caustic waste stream does not include spent caustic streams generated from sampling, maintenance activities, or shutdown purges. Beginning on July 6, 2023, the spent caustic streams generated from sampling, maintenance activities, or shutdown purges are included in the definition of spent caustic waste stream.

■ 7. Section 63.1084 is amended by revising the introductory text and adding paragraph (f) to read as follows:

§ 63.1084 What heat exchange systems are exempt from the requirements of this subpart?

Except as specified in paragraph (f) of this section, your heat exchange system is exempt from the requirements in §§ 63.1085 and 63.1086 if it meets any one of the criteria in paragraphs (a) through (e) of this section.

* * * * *

(f) Beginning no later than the compliance dates specified in § 63.1081(a), your heat exchange system is no longer exempt from the requirements in §§ 63.1085 and 63.1086 if it meets the criteria in paragraph (c) or (d) of this section; instead, your heat exchange system is exempt from the requirements in §§ 63.1085 and 63.1086 if it meets any one of the criteria in paragraph (a), (b), or (e) of this section.

■ 8. Section 63.1085 is amended by revising the introductory text and paragraphs (a) and (b) and by adding paragraphs (e) and (f) to read as follows:

§ 63.1085 What are the general requirements for heat exchange systems?

Unless you meet one of the requirements for exemptions in § 63.1084, you must meet the requirements in paragraphs (a) through (f) of this section.

(a) Except as specified in paragraph (e) of this section, you must monitor the cooling water for the presence of substances that indicate a leak according to § 63.1086(a) through (d).

(b) Except as specified in paragraph (f) of this section, if you detect a leak, then you must repair it according to § 63.1087(a) and (b) unless repair is delayed according to § 63.1088(a) through (c).

* * * * *

(e) Beginning no later than the compliance dates specified in § 63.1081(a), the requirements specified in § 63.1086(a) through (d) no longer apply; instead, you must monitor the cooling water for the presence of total strippable hydrocarbons that indicate a leak according to § 63.1086(e). At any time before the compliance dates specified in § 63.1081(a), you may choose to comply with the requirements in this paragraph in lieu of the requirements in paragraph (a) of this section.

(f) Beginning no later than the compliance dates specified in § 63.1081(a), the requirements specified in §§ 63.1087(a) and (b) and 63.1088(a) through (c), no longer apply; instead, if you detect a leak, then you must repair it according to § 63.1087(c) and (d), unless repair is delayed according to § 63.1088(d). At any time before the compliance dates specified in § 63.1081(a), you may choose to comply with the requirements in this paragraph in lieu of the requirements in paragraph (b) of this section.

■ 9. Section 63.1086 is amended by revising the introductory text and by adding paragraph (e) to read as follows:

§ 63.1086 How must I monitor for leaks to cooling water?

Except as specified in § 63.1085(e) and paragraph (e) of this section, you must monitor for leaks to cooling water by monitoring each heat exchange system according to the requirements of paragraph (a) of this section, monitoring each heat exchanger according to the requirements of paragraph (b) of this section, or monitoring a surrogate parameter according to the requirements of paragraph (c) of this section. Except as specified in § 63.1085(e) and paragraph (e) of this section, if you elect to comply with the requirements of paragraph (a) or (b) of this section, you may use alternatives in paragraph (d)(1) or (2) of this section for determining the mean entrance concentration.

* * * * *

(e) Beginning no later than the compliance dates specified in § 63.1081(a), you must perform monitoring to identify leaks of total strippable hydrocarbons from each heat exchange system subject to the requirements of this subpart according to the procedures in paragraphs (e)(1) through (5) of this section.

(1) *Monitoring locations for closed-loop recirculation heat exchange systems.* For each closed loop recirculating heat exchange system, you must collect and analyze a sample from the location(s) described in either paragraph (e)(1)(i) or (ii) of this section.

(i) Each cooling tower return line or any representative riser within the cooling tower prior to exposure to air for each heat exchange system.

(ii) Selected heat exchanger exit line(s), so that each heat exchanger or group of heat exchangers within a heat exchange system is covered by the selected monitoring location(s).

(2) *Monitoring locations for once-through heat exchange systems.* For each once-through heat exchange system, you must collect and analyze a sample from the location(s) described in paragraph (e)(2)(i) of this section. You may also elect to collect and analyze an additional sample from the location(s) described in paragraph (e)(2)(ii) of this section.

(i) Selected heat exchanger exit line(s), so that each heat exchanger or group of heat exchangers within a heat exchange system is covered by the selected monitoring location(s). The selected monitoring location may be at a point where discharges from multiple heat exchange systems are combined provided that the combined cooling water flow rate at the monitoring location does not exceed 165,000 gallons per minute.

(ii) The inlet water feed line for a once-through heat exchange system prior to any heat exchanger. If multiple heat exchange systems use the same water feed (*i.e.,* inlet water from the same primary water source), you may monitor at one representative location and use the monitoring results for that sampling location for all heat exchange systems that use that same water feed.

(3) *Monitoring method.* If you comply with the total strippable hydrocarbon concentration leak action level as specified in paragraph (e)(4) of this section, you must comply with the requirements in paragraph (e)(3)(i) of this section. If you comply with the total hydrocarbon mass emissions rate leak action level as specified in paragraph (e)(4) of this section, you must comply with the requirements in paragraphs (e)(3)(i) and (ii) of this section.

(i) You must determine the total strippable hydrocarbon concentration (in parts per million by volume (ppmv) as methane) at each monitoring location using the ''Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources'' (incorporated by reference, see § 63.14) using a flame ionization detector analyzer for on-site determination as described in Section 6.1 of the Modified El Paso Method.

(ii) You must convert the total strippable hydrocarbon concentration (in ppmv as methane) to a total hydrocarbon mass emissions rate (as methane) using the calculations in Section 7.0 of ''Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources'' (incorporated by reference—see § 63.14).

(4) *Monitoring frequency and leak action level.* For each heat exchange system, you must comply with the applicable monitoring frequency and leak action level, as defined in paragraphs (e)(4)(i) through (iii) of this section. The monitoring frequencies specified in paragraphs (e)(4)(i) through (iii) of this section also apply to the inlet water feed line for a once-through heat exchange system, if you elect to monitor the inlet water feed as provided in paragraph (e)(2)(ii) of this section.

(i) For each heat exchange system that is part of an ethylene production affected source that commenced construction or reconstruction on or before December 6, 2000, you must monitor quarterly using a leak action level defined as a total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 ppmv or, for heat exchange systems with a recirculation rate of 10,000 gallons per minute or less, you may monitor quarterly using a leak action level defined as a total hydrocarbon mass emissions rate from the heat exchange system (as methane) of 0.18 kg/hr. If a leak is detected as specified in paragraph (e)(5) of this section, then you must monitor monthly until the leak has been repaired according to the requirements in § 63.1087(c) or (d). Once the leak has been repaired according to the requirements in § 63.1087(c) or (d), quarterly monitoring for the heat exchange system may resume.

(ii) For each heat exchange system that is part of an ethylene production affected source that commences construction or reconstruction after December 6, 2000 and on or before October 9, 2019, you must monitor at the applicable frequency specified in paragraph (e)(4)(ii)(A) or (B) of this section using a leak action level defined as a total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 ppmv or, for heat exchange systems with a recirculation rate of 10,000 gallons per minute or less, you may monitor at the applicable frequency specified in paragraph (e)(4)(ii)(A) or (B) of this section using a leak action level defined as a total hydrocarbon mass emissions rate from the heat exchange system (as methane) of 0.18 kg/hr.

(A) If you have completed the initial weekly monitoring for 6-months of the heat exchange system as specified in § 63.1086(a)(2)(ii) or (b)(1)(ii) then you must monitor monthly. If a leak is detected as specified in paragraph (e)(5) of this section, then you must monitor weekly until the leak has been repaired according to the requirements in § 63.1087(c) or (d). Once the leak has been repaired according to the requirements in § 63.1087(c) or (d), monthly monitoring for the heat exchange system may resume.

(B) If you have not completed the initial weekly monitoring for 6-months of the heat exchange system as specified in § 63.1086(a)(2)(ii) or (b)(1)(ii), or if you elect to comply with paragraph (e) of this section rather than paragraphs (a) through (d) of this section upon startup, then you must initially monitor weekly for 6-months beginning upon startup and monitor monthly thereafter. If a leak is detected as specified in paragraph (e)(5) of this section, then you must monitor weekly until the leak has been repaired according to the requirements in § 63.1087(c) or (d). Once the leak has

been repaired according to the requirements in § 63.1087(c) or (d), monthly monitoring for the heat exchange system may resume.

(iii) For each heat exchange system that is part of an ethylene production affected source that commences construction or reconstruction after October 9, 2019, you must initially monitor weekly for 6-months beginning upon startup and monitor monthly thereafter using a leak action level defined as a total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 ppmv or, for heat exchange systems with a recirculation rate of 10,000 gallons per minute or less, you may use a leak action level defined as a total hydrocarbon mass emissions rate from the heat exchange system (as methane) of 0.18 kg/hr if the heat exchange system has a recirculation rate of 10,000 gallons per minute or less. If a leak is detected as specified in paragraph (e)(5) of this section, then you must monitor weekly until the leak has been repaired according to the requirements in § 63.1087(c) or (d). Once the leak has been repaired according to the requirements in § 63.1087(c) or (d), monthly monitoring for the heat exchange system may resume.

(5) *Leak definition.* A leak is defined as described in paragraph (e)(5)(i) or (ii) of this section, as applicable.

(i) For once-through heat exchange systems for which the inlet water feed is monitored as described in paragraph (e)(2)(ii) of this section, a leak is detected if the difference in the measurement value of the sample taken from a location specified in paragraph (e)(2)(i) of this section and the measurement value of the corresponding sample taken from the location specified in paragraph (e)(2)(ii) of this section equals or exceeds the leak action level.

(ii) For all other heat exchange systems, a leak is detected if a measurement value of the sample taken from a location specified in paragraph (e)(1)(i), (ii), or (e)(2)(i) of this section equals or exceeds the leak action level.

■ 10. Section 63.1087 is amended by revising the introductory text and by adding paragraphs (c) and (d) to read as follows:

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

Except as specified in § 63.1085(f) and paragraphs (c) and (d) of this section, 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.

* * * * *

(c) Beginning no later than the compliance dates specified in § 63.1081(a), if a leak is detected using the methods described in § 63.1086(e), you must repair the leak to reduce the concentration or mass emissions rate to below the applicable leak action level as soon as practicable, but no later than 45 days after identifying the leak, except as specified in § 63.1088(d). Repair must include re-monitoring at the monitoring location where the leak was identified according to the method specified in § 63.1086(e)(3) to verify that the total strippable hydrocarbon concentration or total hydrocarbon mass emissions rate is below the applicable leak action level. Repair may also include performing the additional monitoring in paragraph (d) of this section to verify that the total strippable hydrocarbon concentration is below the applicable leak action level. Actions that can be taken to achieve repair include but are not limited to:

(1) Physical modifications to the leaking heat exchanger, such as welding the leak or replacing a tube;

(2) Blocking the leaking tube within the heat exchanger;

(3) Changing the pressure so that water flows into the process fluid;

(4) Replacing the heat exchanger or heat exchanger bundle; or

(5) Isolating, bypassing, or otherwise removing the leaking heat exchanger from service until it is otherwise repaired.

(d) Beginning no later than the compliance dates specified in § 63.1081(a), if you detect a leak when monitoring a cooling tower return line according to § 63.1086(e)(1)(i), you may conduct additional monitoring of each heat exchanger or group of heat exchangers associated with the heat exchange system for which the leak was detected, as provided in § 63.1086(e)(1)(ii). If no leaks are detected when monitoring according to the requirements of § 63.1086(e)(1)(ii), the heat exchange system is considered to have met the repair requirements through re-monitoring of the heat exchange system, as provided in paragraph (c) of this section.

■ 11. Section 63.1088 is amended by revising the introductory text and by adding paragraph (d) to read as follows:

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

You may delay the repair of heat exchange systems if the leaking equipment is isolated from the process. At any time before the compliance dates specified in § 63.1081(a), 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. Beginning no later than the compliance dates specified in § 63.1081(a), paragraphs (a) through (c) of this section no longer apply; instead, you may delay repair if the conditions in paragraph (d) of this section are met.

* * * * *

(d) Beginning no later than the compliance dates specified in § 63.1081(a), you may delay repair when one of the conditions in paragraph (d)(1) or (2) of this section is met and the leak is less than the delay of repair action level specified in paragraph (d)(3) of this section. You must determine if a delay of repair is necessary as soon as practicable, but no later than 45 days after first identifying the leak.

(1) If the repair is technically infeasible without a shutdown and the total strippable hydrocarbon concentration or total hydrocarbon mass emissions rate is initially and remains less than the delay of repair action level for all monitoring periods during the delay of repair, then you may delay repair until the next scheduled shutdown of the heat exchange system. If, during subsequent monitoring, the delay of repair action level is exceeded, then you must repair the leak within 30 days of the monitoring event in which the leak was equal to or exceeded the delay of repair action level.

(2) If the necessary equipment, parts, or personnel are not available and the total strippable hydrocarbon concentration or total hydrocarbon mass emissions rate is initially and remains less than the delay of repair action level for all monitoring periods during the delay of repair, then you may delay the repair for a maximum of 120 calendar days. You must demonstrate that the necessary equipment, parts, or personnel were not available. If, during subsequent monitoring, the delay of repair action level is exceeded, then you must repair the leak within 30 days of the monitoring event in which the leak was equal to or exceeded the delay of repair action level.

(3) The delay of repair action level is a total strippable hydrocarbon concentration (as methane) in the stripping gas of 62 ppmv or, for heat exchange systems with a recirculation rate of 10,000 gallons per minute or less, the delay of repair action level is a total hydrocarbon mass emissions rate (as methane) or 1.8 kg/hr. The delay of repair action level is assessed as described in paragraph (d)(3)(i) or (ii) of this section, as applicable.

(i) For once-through heat exchange systems for which the inlet water feed

is monitored as described in § 63.1086(e)(2)(ii), the delay of repair action level is exceeded if the difference in the measurement value of the sample taken from a location specified in § 63.1086(e)(2)(i) and the measurement value of the corresponding sample taken from the location specified in § 63.1086(e)(2)(ii) equals or exceeds the delay of repair action level.

(ii) For all other heat exchange systems, the delay of repair action level is exceeded if a measurement value of the sample taken from a location specified in § 63.1086(e)(1)(i) and (ii) or § 63.1086(e)(2)(i) equals or exceeds the delay of repair action level.

■ 12. Section 63.1089 is amended by revising paragraphs (d) and (e) to read as follows:

§ 63.1089 What records must I keep?

* * * * *

(d) At any time before the compliance dates specified in § 63.1081(a), you must keep documentation of delay of repair as specified in § 63.1088(a) through (c). Beginning no later than the compliance dates specified in § 63.1081(a), the requirement to keep documentation of delay of repair as specified in § 63.1088(a) through (c) no longer applies; instead, you must keep documentation of delay of repair as specified in paragraphs (d)(1) through (4) of this section.

(1) The reason(s) for delaying repair.

(2) A schedule for completing the repair as soon as practical.

(3) The date and concentration or mass emissions rate of the leak as first identified and the results of all subsequent monitoring events during the delay of repair.

(4) An estimate of the potential total hydrocarbon emissions from the leaking heat exchange system or heat exchanger for each required delay of repair monitoring interval following the applicable procedures in paragraphs (d)(4)(i) through (iii) of this section.

(i) If you comply with the total strippable hydrocarbon concentration leak action level, as specified in § 63.1086(e)(4), you must calculate the mass emissions rate by complying with the requirements of § 63.1086(e)(3)(ii) or by determining the mass flow rate of the cooling water at the monitoring location where the leak was detected. If the monitoring location is an individual cooling tower riser, determine the total cooling water mass flow rate to the cooling tower. Cooling water mass flow rates may be determined using direct measurement, pump curves, heat balance calculations, or other engineering methods. If you determine the mass flow rate of the cooling water, calculate the mass emissions rate by converting the stripping gas leak concentration (in ppmv as methane) to an equivalent liquid concentration, in parts per million by weight (ppmw), using equation 7–1 from ''Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources'' (incorporated by reference—see § 63.14) and multiply the equivalent liquid concentration by the mass flow rate of the cooling water.

(ii) For delay of repair monitoring intervals prior to repair of the leak, calculate the potential total hydrocarbon emissions for the leaking heat exchange system or heat exchanger for the monitoring interval by multiplying the mass emissions rate, determined in § 63.1086(e)(3)(ii) or paragraph (d)(4)(i) of this section, by the duration of the delay of repair monitoring interval. The duration of the delay of repair monitoring interval is the time period starting at midnight on the day of the previous monitoring event or at midnight on the day the repair would have been completed if the repair had not been delayed, whichever is later, and ending at midnight of the day the of the current monitoring event.

(iii) For delay of repair monitoring intervals ending with a repaired leak, calculate the potential total hydrocarbon emissions for the leaking heat exchange system or heat exchanger for the final delay of repair monitoring interval by multiplying the duration of the final delay of repair monitoring interval by the mass emissions rate determined for the last monitoring event prior to the re-monitoring event used to verify the leak was repaired. The duration of the final delay of repair monitoring interval is the time period starting at midnight of the day of the last monitoring event prior to re-monitoring to verify the leak was repaired and ending at the time of the re-monitoring event that verified that the leak was repaired.

(e) At any time before the compliance dates specified in § 63.1081(a), if you validate a 40 CFR part 136 method for the HAP listed in Table 1 to this subpart according to the procedures in appendix D to this part, then you must keep a record of the test data and calculations used in the validation. On the compliance dates specified in § 63.1081(a), this requirement no longer applies.

■ 13. Section 63.1090 is amended by revising the introductory text and by adding paragraph (f) to read as follows:

§ 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. Except as provided in paragraph (f) of this section, you must include the information in paragraphs (a) through (e) of this section in the semiannual report.

* * * * *

(f) For heat exchange systems subject to § 63.1085(e) and (f), Periodic Reports must include the information specified in paragraphs (f)(1) through (5) of this section, in lieu of the information specified in paragraphs (a) through (e) of this section.

(1) The number of heat exchange systems at the plant site subject to the monitoring requirements in § 63.1085(e) and (f) during the reporting period.

(2) The number of heat exchange systems subject to the monitoring requirements in § 63.1085(e) and (f) at the plant site found to be leaking during the reporting period.

(3) For each monitoring location where the total strippable hydrocarbon concentration or total hydrocarbon mass emissions rate was determined to be equal to or greater than the applicable leak definitions specified in § 63.1086(e)(5) during the reporting period, identification of the monitoring location (*e.g.*, unique monitoring location or heat exchange system ID number), the measured total strippable hydrocarbon concentration or total hydrocarbon mass emissions rate, the date the leak was first identified, and, if applicable, the date the source of the leak was identified;

(4) For leaks that were repaired during the reporting period (including delayed repairs), identification of the monitoring location associated with the repaired leak, the total strippable hydrocarbon concentration or total hydrocarbon mass emissions rate measured during re-monitoring to verify repair, and the re-monitoring date (*i.e.*, the effective date of repair); and

(5) For each delayed repair, identification of the monitoring location associated with the leak for which repair is delayed, the date when the delay of repair began, the date the repair is expected to be completed (if the leak is not repaired during the reporting period), the total strippable hydrocarbon concentration or total hydrocarbon mass emissions rate and date of each monitoring event conducted on the delayed repair during the reporting period, and an estimate of the potential total hydrocarbon emissions over the reporting period associated with the delayed repair.

■ 14. Section 63.1095 is amended by:
■ a. Revising paragraph (a)(1) introductory text;
■ b. Adding paragraph (a)(1)(vi);
■ c. Revising paragraphs (a)(3), (b) introductory text, and (b)(1); and
■ d. Adding paragraph (b)(3).

The revisions and additions read as follows:

§ 63.1095 What specific requirements must I comply with?

* * * * *

(a) * * *

(1) Route the continuous butadiene stream to a treatment process or wastewater treatment system used to treat benzene waste streams that complies with the standards specified in 40 CFR 61.348. Comply with the requirements of 40 CFR part 61, subpart FF; with the changes in Table 2 to this subpart, and as specified in paragraphs (a)(1)(i) through (vi) of this section.

* * * * *

(vi) Beginning no later than the compliance dates specified in § 63.1081(b), if you use a steam-assisted, air-assisted, non-assisted, or pressure-assisted multi-point flare to comply with 40 CFR part 61, subpart FF, then you must comply with the requirements § 63.1103(e)(4) in lieu of 40 CFR 61.349(a)(2)(iii) and (d), 40 CFR 61.354(c)(3), 40 CFR 61.356(f)(2)(i)(D) and (j)(7), and 40 CFR 61.357(d)(7)(iv)(F).

* * * * *

(3) Before July 6, 2023, if the total annual benzene quantity from waste at your facility is less than 10 Mg/yr, as determined according to 40 CFR 61.342(a), comply with the requirements of this section at all times except during periods of startup, shutdown, and malfunction, if the startup, shutdown, or malfunction precludes the ability of the affected source to comply with the requirements of this section and the owner or operator follows the provisions for periods of startup, shutdown, and malfunction, as specified in § 63.1111. Beginning on July 6, 2023, if the total annual benzene quantity from waste at your facility is less than 10 Mg/yr, as determined according to 40 CFR 61.342(a), you must comply with the requirements of this section at all times.

(b) *Waste streams that contain benzene.* For waste streams that contain benzene, you must comply with the requirements of 40 CFR part 61, subpart FF, except as specified in Table 2 to this subpart and paragraph (b)(3) of this section. You must manage and treat waste streams that contain benzene as specified in either paragraph (b)(1) or (2) of this section.

(1) If the total annual benzene quantity from waste at your facility is less than 10 Mg/yr, as determined according to 40 CFR 61.342(a), manage and treat spent caustic waste streams and dilution steam blowdown waste streams according to 40 CFR 61.342(c)(1) through (c)(3)(i). Before July 6, 2023, the requirements of this paragraph (b)(1) shall apply at all times except during periods of startup, shutdown, and malfunction, if the startup, shutdown, or malfunction precludes the ability of the affected source to comply with the requirements of this section and the owner or operator follows the provisions for periods of startup, shutdown, and malfunction, as specified in § 63.1111. Beginning on July 6, 2023, the requirements of this paragraph (b)(1) shall apply at all times.

* * * * *

(3) Beginning no later than the compliance dates specified in § 63.1081(b), if you use a steam-assisted, air-assisted, non-assisted, or pressure-assisted multi-point flare to comply with 40 CFR part 61, subpart FF, then you must comply with the requirements of § 63.1103(e)(4) in lieu of 40 CFR 61.349(a)(2)(iii) and (d), 40 CFR 61.354(c)(3), 40 CFR 61.356(f)(2)(i)(D) and (j)(7), and 40 CFR 61.357(d)(7)(iv)(F).

■ 15. Table 2 to subpart XX of part 63 is amended by revising the first three entries to row 1 and the first two entries to row 2 to read as follows:

TABLE 2 TO SUBPART XX OF PART 63—REQUIREMENTS OF 40 CFR PART 61, SUBPART FF, NOT INCLUDED IN THE REQUIREMENTS FOR THIS SUBPART AND ALTERNATE REQUIREMENTS

If the total annual benzene quantity for waste from your facility is * * *	Do not comply with:	Instead, comply with:
1. Less than 10 Mg/yr	40 CFR 61.340	§ 63.1093.
	40 CFR 61.342(c)(3)(ii), (d), and (e)	There is no equivalent requirement.
	40 CFR 61.342(f)	§ 63.1096.
* *	* * *	* *
2. Greater than or equal to 10 Mg/yr	40 CFR 61.340	§ 63.1093.
	40 CFR 61.342(f)	§ 63.1096.
* *	* * *	* *

Subpart YY—National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards

■ 16. Section 63.1100 is amended by:
■ a. Revising the heading to Table 1 to § 63.1100(a);
■ b. Revising the entries for "Carbon Black Production," "Cyanide Chemicals Manufacturing," "Ethylene Production," and "Spandex Production";
■ c. Revising footnote c to Table 1 to § 63.1100(a);
■ d. Revising paragraphs (b), (g) introductory text, and (g)(4)(ii);
■ e. Adding paragraph (g)(4)(iii);
■ f. Revising paragraph (g)(5); and
■ g. Adding paragraph (g)(7).

The revisions and additions read as follows:

§ 63.1100 Applicability.

(a) * * *

TABLE 1 TO § 63.1100(a)—SOURCE CATEGORY MACT [a] APPLICABILITY

Source category	Storage vessels	Process vents	Transfer racks	Equipment leaks	Wastewater 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 [c]	§ 63.1103(e).
* *		*	*		*	*	*
Spandex Production	Yes	Yes	No	No	No	Yes [d]	§ 63.1103(h).

[a] Maximum achievable control technology.
[b] Fiber spinning lines using spinning solution or suspension containing acrylonitrile.
[c] Heat exchange systems as defined in § 63.1082(b).
[d] Fiber spinning lines.

(b) *Subpart A requirements.* The following provisions of subpart A of this part (General Provisions), §§ 63.1 through 63.5, and §§ 63.12 through 63.15, apply to owners or operators of affected sources subject to this subpart. Beginning no later than the compliance dates specified in § 63.1102(c), for ethylene production affected sources, §§ 63.7(a)(4), (c), (e)(4), and (g)(2), and 63.10(b)(2)(vi) also apply.

* * * * *

(g) *Overlap with other regulations.* Paragraphs (g)(1) through (7) of this section specify the applicability of this subpart YY emission point requirements when other rules may apply. Where this subpart YY allows an owner or operator an option to comply with one or another regulation to comply with this subpart YY, an owner or operator must report which regulation they choose to comply with in the Notification of Compliance Status report required by § 63.1110(a)(4).

(4) * * *

(ii) After the compliance dates specified in § 63.1102, equipment that must be controlled according to this subpart YY and subpart H of this part is in compliance with the equipment leak requirements of this subpart YY if it complies with either set of requirements. For ethylene production affected sources, the requirement in § 63.1103(e)(9)(i) also applies. The owner or operator must specify the rule with which they will comply in the Notification of Compliance Status report required by § 63.1110(a)(4).

(iii) Beginning no later than the compliance dates specified in § 63.1102(c), for ethylene production affected sources, equipment that must be controlled according to this subpart YY and subpart VVa of 40 CFR part 60 is required only to comply with the equipment leak requirements of this subpart, except the owner or operator must also comply with the calibration drift assessment requirements specified at 40 CFR 60.485a(b)(2) if they are required to do so in subpart VVa of 40 CFR part 60. When complying with the calibration drift assessment requirements at 40 CFR 60.485a(b)(2), the requirement at 40 CFR 60.486a(e)(8)(v) to record the instrument reading for each scale used applies.

(5) *Overlap of this 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, G, and H of this part (collectively known as 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.

* * * * *

(7) *Overlap of this subpart YY with other regulations for flares for the ethylene production source category.* (i) Beginning no later than the compliance dates specified in § 63.1102(c), flares that are subject to 40 CFR 60.18 or § 63.11 and used as a control device for an emission point subject to the requirements in Table 7 to § 63.1103(e) are required to comply only with § 63.1103(e)(4). At any time before the compliance dates specified in § 63.1102(c), flares that are subject to 40 CFR 60.18 or § 63.11 and elect to comply with § 63.1103(e)(4) are required to comply only with § 63.1103(e)(4).

(ii) Beginning no later than the compliance dates specified in § 63.1102(c), flares subject to § 63.987 and used as a control device for an emission point subject to the requirements in Table 7 to § 63.1103(e) are only required to comply with § 63.1103(e)(4).

(iii) Beginning no later than the compliance dates specified in § 63.1102(c), flares subject to the requirements in 40 CFR part 63, subpart CC and used as a control device for an emission point subject to the requirements in Table 7 to § 63.1103(e) are only required to comply with the flare requirements in 40 CFR part 63, subpart CC. This paragraph does not apply to multi-point pressure assisted flares.

■ 17. Section 63.1101 is amended by revising the definitions of ''Pressure relief device or valve'' and ''Shutdown'' to read as follows:

§ 63.1101 Definitions.

* * * * *

Pressure relief device or valve means a safety device used to prevent operating pressures from exceeding the maximum allowable working pressure of the process equipment. A common pressure relief device is a spring-loaded pressure relief valve. Devices that are actuated either by a pressure of less than or equal to 2.5 pounds per square inch gauge or by a vacuum are not pressure relief devices. This definition does not apply to ethylene production affected sources.

* * * * *

Shutdown means the cessation of operation of an affected source or equipment that is 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 cracking furnaces.

* * * * *

■ 18. Section 63.1102 is amended by revising paragraph (a) introductory text and adding paragraph (c) 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 modacrylic 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 YY according to the schedule in paragraph (a)(1) or (2) of this section, as appropriate, except as provided in paragraph (b) of this section. Affected sources in ethylene production also must comply according to paragraph (c) of this section. Proposal and effective dates are specified in Table 1 to this section.

* * * * *

(c) All ethylene production affected sources that commenced construction or reconstruction on or before October 9, 2019, must be in compliance with the requirements listed in paragraphs (c)(1) through (13) of this section upon initial startup or July 6, 2023, whichever is later. All ethylene production affected sources that commenced construction or reconstruction after October 9, 2019, must be in compliance with the requirements listed in paragraphs (c)(1) through (13) of this section upon initial startup, or July 6, 2020, whichever is later.

(1) Overlap requirements specified in § 63.1100(g)(4)(iii) and (7), if applicable.

(2) The storage vessel requirements specified in paragraphs (b)(1)(iii) and (c)(1)(ii) of Table 7 to § 63.1103(e), and the degassing requirements specified in § 63.1103(e)(10).

(3) The ethylene process vent requirements specified in paragraph (d)(1)(ii) of Table 7 to § 63.1103(e).

(4) The transfer rack requirements specified in § 63.1105(a)(5).

(5) The equipment requirements specified in paragraph (f)(1)(ii) of Table 7 to § 63.1103(e) and § 63.1107(h).

(6) The bypass line requirements specified in paragraph (i) of Table 7 to § 63.1103(e), and § 63.1103(e)(6).

(7) The decoking requirements for ethylene cracking furnaces specified in paragraph (j) of Table 7 to § 63.1103(e), and § 63.1103(e)(7) and (8).

(8) The flare requirements specified in § 63.1103(e)(4).

(9) The maintenance vent requirements specified in § 63.1103(e)(5).

(10) The requirements specified in § 63.1103(e)(9).

(11) The requirements in § 63.1108(a)(4)(i), (b)(1)(ii), (b)(2), and (b)(4)(ii)(B).

(12) The recordkeeping requirements specified in § 63.1109(e) through (i).

(13) The reporting requirements specified in § 63.1110(a)(10), (d)(1)(iv) and (v), and (e)(4) through (8).

* * * * *

■ 19. Section 63.1103 is amended:

■ a. By revising the definition of ''In organic hazardous air pollutant or in organic HAP service'' in paragraph (b)(2);

■ b. By revising paragraphs (e)(1)(i) introductory text, (e)(1)(i)(F), and (e)(1)(ii)(J);

■ c. In paragraph (e)(2) by;

■ i. Adding in alphabetical order a definition for ''Decoking operation'';

■ ii. Revising the definition of ''Ethylene process vent'';

■ iii. Adding in alphabetical order a definition for ''Force majeure event'';

■ iv. Removing the definition of ''Heat exchange system'';

■ v. Adding in alphabetical order definitions for ''Periodically discharged,'' ''Pressure-assisted multi-point flare,'' ''Pressure relief device,'' ''Radiant tube(s),'' and ''Relief valve'';

■ d. By revising paragraph (e)(3);

■ e. By adding paragraphs (e)(4) through (10); and

■ e. By revising Table 7 to § 63.1103(e).

The revisions and additions read as follows:

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

* * * * *

(b) * * *

(2) * * *

In organic hazardous air pollutant or in organic HAP service means, for acrylic and modacrylic fiber production affected sources, that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of total organic HAP as determined according to the provisions of § 63.180(d). The provisions of § 63.180(d) also specify how to determine that a piece of equipment is not in organic HAP service.

* * * * *

(e) * * *

(1) * * *

(i) *Affected source.* For the ethylene production (as defined in paragraph (e)(2) of this section) source category, the affected source comprises all emission points listed in paragraphs (e)(1)(i)(A) through (G) of this section that are associated with an ethylene production unit that is located at a major source, as defined in section 112(a) of the Act.

* * * * *

(F) All heat exchange systems (as defined in § 63.1082(b)) associated with an ethylene production unit.

* * * * *

(ii) * * *

(J) Air emissions from all ethylene cracking furnaces.

* * * * *

(2) * * *

Decoking operation means the coke combustion activity that occurs inside the radiant tube(s) in the ethylene cracking furnace firebox. Coke combustion activities during decoking can also occur in other downstream equipment such as the process gas outlet piping and transfer line exchangers or quench points.

Ethylene process vent means a gas stream with a flow rate greater than 0.005 standard cubic meters per minute containing greater than 20 parts per million by volume HAP that is continuously discharged during operation of an ethylene production unit. On and after July 6, 2023, ethylene process vent means a gas stream with a flow rate greater than 0.005 standard cubic meters per minute containing greater than 20 parts per million by volume HAP that is continuously or periodically discharged during operation of an ethylene production unit. Ethylene 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 process vents do not include:

(A) Pressure relief device discharges;

(B) Gaseous streams routed to a fuel gas system, including any flares using fuel gas, of which less than 50 percent

of the fuel gas is derived from an ethylene production unit;

(C) Gaseous streams routed to a fuel gas system whereby any flares using fuel gas, of which 50 percent or more of the fuel gas is derived from an ethylene production unit, comply with § 63.1103(e)(4) beginning no later than the compliance dates specified in § 63.1102(c);

(D) Leaks from equipment regulated under this subpart;

(E) Episodic or nonroutine releases such as those associated with startup, shutdown, and malfunction until July 6, 2023;

(F) In situ sampling systems (online analyzers) until July 6, 2023; and

(G) Coke combustion emissions from decoking operations beginning no later than the compliance dates specified in § 63.1102(c).

* * * * *

Force majeure event means a release of HAP, either directly to the atmosphere from a pressure relief device or discharged via a flare, that is demonstrated to the satisfaction of the Administrator to result from an event beyond the owner or operator's control, such as natural disasters; acts of war or terrorism; loss of a utility external to the ethylene production unit (*e.g.*, external power curtailment), excluding power curtailment due to an interruptible service agreement; and fire or explosion originating at a near or adjoining facility outside of the ethylene production unit that impacts the ethylene production unit's ability to operate.

* * * * *

Periodically discharged means gas stream discharges that are intermittent for which the total organic HAP concentration is greater than 20 parts per million by volume and total volatile organic compound emissions are 50 pounds per day or more. These intermittent discharges are associated with routine operations, maintenance activities, startups, shutdowns, malfunctions, or process upsets and do not include pressure relief device discharges or discharges classified as maintenance vents.

Pressure-assisted multi-point flare means a flare system consisting of multiple flare burners in staged arrays whereby the vent stream pressure is used to promote mixing and smokeless operation at the flare burner tips. Pressure-assisted multi-point flares are designed for smokeless operation at velocities up to Mach = 1 conditions (*i.e.*, sonic conditions), can be elevated or at ground level, and typically use cross-lighting for flame propagation to combust any flare vent gases sent to a particular stage of flare burners.

Pressure relief device means a valve, rupture disk, or similar device used only to release an unplanned, nonroutine discharge of gas from process equipment in order to avoid safety hazards or equipment damage. A pressure relief device discharge can result from an operator error, a malfunction such as a power failure or equipment failure, or other unexpected cause. Such devices include conventional, spring-actuated relief valves, balanced bellows relief valves, pilot-operated relief valves, rupture disks, and breaking, buckling, or shearing pin devices. Devices that are actuated either by a pressure of less than or equal to 2.5 pounds per square inch gauge or by a vacuum are not pressure relief devices.

Radiant tube(s) means any portion of the tube coil assembly located within the ethylene cracking furnace firebox whereby a thermal cracking reaction of hydrocarbons (in the presence of steam) occurs. Hydrocarbons and steam pass through the radiant tube(s) of the ethylene cracking furnace during normal operation and coke is removed from the inside of the radiant tube(s) during decoking operation.

Relief valve means a type of pressure relief device that is designed to re-close after the pressure relief.

* * * * *

(3) *Requirements.* 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 this section. An owner or operator must perform the applicability assessment procedures and methods for process vents specified in § 63.1104, except for paragraphs (d), (g), (h) through (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. Before July 6, 2023, 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. A startup, shutdown, and malfunction plan is not required on and after July 6, 2023 and the requirements specified in § 63.1111 no longer apply; however, for historical compliance purposes, a copy of the plan must be retained and available on-site for five years after July 6, 2023. Except as specified in paragraph (e)(4)(i) of this section, procedures for approval of alternate means of emission limitations are specified in § 63.1113.

(4) *Flares.* Beginning no later than the compliance dates specified in § 63.1102(c), if a steam-assisted, air-assisted, non-assisted, or pressure-assisted multi-point flare is used as a control device for an emission point subject to the requirements in Table 7 to this section, then the owner or operator must meet the applicable requirements for flares as specified in §§ 63.670 and 63.671 of subpart CC, including the provisions in Tables 12 and 13 to subpart CC of this part, except as specified in paragraphs (e)(4)(i) through (xiv) of this section. This requirement also applies to any flare using fuel gas from a fuel gas system, of which 50 percent or more of the fuel gas is derived from an ethylene production unit, being used to control an emission point subject to the requirements in Table 7 of this section. For purposes of compliance with this paragraph, the following terms are defined in § 63.641 of subpart CC: Assist air, assist steam, center steam, combustion zone, combustion zone gas, flare, flare purge gas, flare supplemental gas, flare sweep gas, flare vent gas, lower steam, net heating value, perimeter assist air, pilot gas, premix assist air, total steam, and upper steam.

(i) The owner or operator may elect to comply with the alternative means of emissions limitation requirements specified in of § 63.670(r) of subpart CC in lieu of the requirements in § 63.670(d) through (f) of subpart CC, as applicable. However, instead of complying with § 63.670(r)(3) of subpart CC, the owner or operator must submit the alternative means of emissions limitation request following the requirements in § 63.1113.

(ii) Instead of complying with § 63.670(o)(2)(i) of subpart CC, the owner or operator must develop and implement the flare management plan no later than the compliance dates specified in § 63.1102(c).

(iii) Instead of complying with § 63.670(o)(2)(iii) of subpart CC, if required to develop a flare management plan and submit it to the Administrator, then the owner or operator must also submit all versions of the plan in portable document format (PDF) to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). If you claim some of the information in your flare management plan is confidential business information (CBI), submit a version with the CBI omitted via CEDRI. A complete plan, including information claimed to

be CBI and clearly marked as CBI, must be mailed to the following address: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, U.S. EPA Mailroom (E143–01), Attention: Ethylene Production Sector Lead, 109 T.W. Alexander Drive, Research Triangle Park, NC 27711.

(iv) Section 63.670(o)(3)(ii) of subpart CC and all references to § 63.670(o)(3)(ii) of subpart CC do not apply. Instead, the owner or operator must comply with the maximum flare tip velocity operating limit at all times.

(v) Substitute ''ethylene production unit'' for each occurrence of ''petroleum refinery.''

(vi) Each occurrence of ''refinery'' does not apply.

(vii) Except as specified in paragraph (e)(4)(vii)(G) of this section, if a pressure-assisted multi-point flare is used as a control device for an emission point subject to the requirements in Table 7 to this section, then the owner or operator must comply with the requirements specified in paragraphs (e)(4)(vii)(A) through (F) of this section.

(A) The owner or operator is not required to comply with the flare tip velocity requirements in § 63.670(d) and (k) of subpart CC;

(B) The owner or operator must substitute ''800'' for each occurrence of ''270'' in § 63.670(e) of subpart CC;

(C) The owner or operator must determine the 15-minute block average NHVvg using only the direct calculation method specified in § 63.670(l)(5)(ii) of subpart CC;

(D) Instead of complying with § 63.670(b) and (g) of subpart CC, if a pressure-assisted multi-point flare uses cross-lighting on a stage of burners rather than having an individual pilot flame on each burner, the owner or operator must operate each stage of the pressure-assisted multi-point flare with a flame present at all times when regulated material is routed to that stage of burners. Each stage of burners that cross-lights in the pressure-assisted multi-point flare must have at least two pilots with at least one continuously lit and capable of igniting all regulated material that is routed to that stage of burners. Each 15-minute block during which there is at least one minute where no pilot flame is present on a stage of burners when regulated material is routed to that stage is a deviation of the standard. Deviations in different 15-minute blocks from the same event are considered separate deviations. The pilot flame(s) on each stage of burners that use cross-lighting must be continuously monitored by a thermocouple or any other equivalent device used to detect the presence of a flame;

(E) Unless the owner or operator of a pressure-assisted multi-point flare chooses to conduct a cross-light performance demonstration as specified in this paragraph, the owner or operator must ensure that if a stage of burners on the flare uses cross-lighting, that the distance between any two burners in series on that stage is no more than 6 feet when measured from the center of one burner to the next burner. A distance greater than 6 feet between any two burners in series may be used provided the owner or operator conducts a performance demonstration that confirms the pressure-assisted multi-point flare will cross-light a minimum of three burners and the spacing between the burners and location of the pilot flame must be representative of the projected installation. The compliance demonstration must be approved by the permitting authority and a copy of this approval must be maintained onsite. The compliance demonstration report must include: A protocol describing the test methodology used, associated test method QA/QC parameters, the waste gas composition and NHVcz of the gas tested, the velocity of the waste gas tested, the pressure-assisted multi-point flare burner tip pressure, the time, length, and duration of the test, records of whether a successful cross-light was observed over all of the burners and the length of time it took for the burners to cross-light, records of maintaining a stable flame after a successful cross-light and the duration for which this was observed, records of any smoking events during the cross-light, waste gas temperature, meteorological conditions (*e.g.*, ambient temperature, barometric pressure, wind speed and direction, and relative humidity), and whether there were any observed flare flameouts; and

(F) The owner or operator of a pressure-assisted multi-point flare must install and operate pressure monitor(s) on the main flare header, as well as a valve position indicator monitoring system for each staging valve to ensure that the flare operates within the proper range of conditions as specified by the manufacturer. The pressure monitor must meet the requirements in Table 13 to subpart CC of this part.

(G) If a pressure-assisted multi-point flare is operating under the requirements of an approved alternative means of emission limitations, the owner or operator shall either continue to comply with the terms of the alternative means of emission limitations or comply with the provisions in paragraphs (e)(4)(vii)(A) through (F) of this section.

(viii) If an owner or operator chooses to determine compositional analysis for net heating value with a continuous process mass spectrometer, the owner or operator must comply with the requirements specified in paragraphs (e)(4)(viii)(A) through (G) of this section.

(A) The owner or operator must meet the requirements in § 63.671(e)(2). The owner or operator may augment the minimum list of calibration gas components found in § 63.671(e)(2) with compounds found during a pre-survey or known to be in the gas through process knowledge.

(B) Calibration gas cylinders must be certified to an accuracy of 2 percent and traceable to National Institute of Standards and Technology (NIST) standards.

(C) For unknown gas components that have similar analytical mass fragments to calibration compounds, the owner or operator may report the unknowns as an increase in the overlapped calibration gas compound. For unknown compounds that produce mass fragments that do not overlap calibration compounds, the owner or operator may use the response factor for the nearest molecular weight hydrocarbon in the calibration mix to quantify the unknown component's NHV_{vg}.

(D) The owner or operator may use the response factor for n-pentane to quantify any unknown components detected with a higher molecular weight than n-pentane.

(E) The owner or operator must perform an initial calibration to identify mass fragment overlap and response factors for the target compounds.

(F) The owner or operator must meet applicable requirements in Performance Specification 9 of 40 CFR part 60, appendix B, for continuous monitoring system acceptance including, but not limited to, performing an initial multi-point calibration check at three concentrations following the procedure in Section 10.1 and performing the periodic calibration requirements listed for gas chromatographs in Table 13 to subpart CC of this part, for the process mass spectrometer. The owner or operator may use the alternative sampling line temperature allowed under Net Heating Value by Gas Chromatograph in Table 13 to subpart CC of this part.

(G) The average instrument calibration error (CE) for each calibration compound at any calibration concentration must not differ by more than 10 percent from the certified cylinder gas value. The CE for each

component in the calibration blend must be calculated using the following equation:

$$CE = \frac{C_m - C_a}{C_a} x\ 100$$

Where:

C_m = Average instrument response (ppm)
C_a = Certified cylinder gas value (ppm)

(ix) An owner or operator using a gas chromatograph or mass spectrometer for compositional analysis for net heating value may choose to use the CE of $NHV_{measured}$ versus the cylinder tag value NHV as the measure of agreement for daily calibration and quarterly audits in lieu of determining the compound-specific CE. The CE for NHV at any calibration level must not differ by more than 10 percent from the certified cylinder gas value. The CE for must be calculated using the following equation:

$$CE = \frac{NHV_{measured} - NHV_a}{NHV_a} x\ 100$$

Where:

$NHV_{measured}$ = Average instrument response (Btu/scf)
NHV_a = Certified cylinder gas value (Btu/scf)

(x) Instead of complying with § 63.670(p) of subpart CC, the owner or operator must keep the flare monitoring records specified in § 63.1109(e).

(xi) Instead of complying with § 63.670(q) of subpart CC, the owner or operator must comply with the reporting requirements specified in § 63.1110(d) and (e)(4).

(xii) When determining compliance with the pilot flame requirements specified in § 63.670(b) and (g), substitute "pilot flame or flare flame" for each occurrence of "pilot flame."

(xiii) When determining compliance with the flare tip velocity and combustion zone operating limits specified in § 63.670(d) and (e), the requirement effectively applies starting with the 15-minute block that includes a full 15 minutes of the flaring event. The owner or operator is required to demonstrate compliance with the velocity and NHVcz requirements starting with the block that contains the fifteenth minute of a flaring event. The owner or operator is not required to demonstrate compliance for the previous 15-minute block in which the event started and contained only a fraction of flow.

(xiv) In lieu of meeting the requirements in §§ 63.670 and 63.671 of subpart CC, an owner or operator may submit a request to the Administrator for approval of an alternative test method in accordance with § 63.7(f). The alternative test method must be able to demonstrate on an ongoing basis at least once every 15-minutes that the flare meets 96.5% combustion efficiency and provide a description of the alternative recordkeeping and reporting that would be associated with the alternative test method. The alternative test method request may also include a request to use the alternative test method in lieu of the pilot or flare flame monitoring requirements of 63.670(g).

(5) *Maintenance vents.* Unless an extension is requested in accordance with the provisions in § 63.6(i) of subpart A, beginning no later than the compliance dates specified in § 63.1102(c), an owner or operator may designate an ethylene process vent as a maintenance vent if the vent is only used as a result of startup, shutdown, maintenance, or inspection of equipment where equipment is emptied, depressurized, degassed, or placed into service. The owner or operator must comply with the applicable requirements in paragraphs (e)(5)(i) through (iii) of this section for each maintenance vent.

(i) Prior to venting to the atmosphere, remove process liquids from the equipment as much as practical and depressurize the equipment to either: A flare meeting the requirements specified in paragraph (e)(4) of this section, or a non-flare control device meeting the requirements specified in § 63.982(c)(2) of subpart SS, until one of the following conditions, as applicable, is met.

(A) The vapor in the equipment served by the maintenance vent has a lower explosive limit (LEL) of less than 10 percent.

(B) If there is no ability to measure the LEL of the vapor in the equipment based on the design of the equipment, the pressure in the equipment served by the maintenance vent is reduced to 5 pounds per square inch gauge (psig) or less. Upon opening the maintenance vent, active purging of the equipment cannot be used until the LEL of the vapors in the maintenance vent (or inside the equipment if the maintenance is a hatch or similar type of opening) is less than 10 percent.

(C) The equipment served by the maintenance vent contains less than 50 pounds of total volatile organic compounds (VOC).

(D) If, after applying best practices to isolate and purge equipment served by a maintenance vent, none of the applicable criterion in paragraphs (e)(5)(i)(A) through (C) of this section can be met prior to installing or removing a blind flange or similar equipment blind, then the pressure in the equipment served by the maintenance vent must be reduced to 2 psig or less before installing or removing the equipment blind. During installation or removal of the equipment blind, active purging of the equipment may be used provided the equipment pressure at the location where purge gas is introduced remains at 2 psig or less.

(ii) Except for maintenance vents complying with the alternative in paragraph (e)(5)(i)(C) of this section, the owner or operator must determine the LEL or, if applicable, equipment pressure using process instrumentation or portable measurement devices and follow procedures for calibration and maintenance according to manufacturer's specifications.

(iii) For maintenance vents complying with the alternative in paragraph (e)(5)(i)(C) of this section, the owner or operator must determine mass of VOC in the equipment served by the maintenance vent based on the equipment size and contents after considering any contents drained or purged from the equipment. Equipment size may be determined from equipment design specifications. Equipment contents may be determined using process knowledge.

(6) *Bypass lines.* Beginning on the compliance dates specified in § 63.1102(c), the use of a bypass line at any time on a closed vent system to divert emissions subject to the requirements in Table 7 to § 63.1103(e) to the atmosphere or to a control device not meeting the requirements specified in Table 7 of this subpart is an emissions standards violation. If the owner or operator is subject to the bypass monitoring requirements of § 63.983(a)(3) of subpart SS, then the owner or operator must continue to comply with the requirements in § 63.983(a)(3) of subpart SS and the recordkeeping and reporting requirements in §§ 63.998(d)(1)(ii) and 63.999(c)(2) of subpart SS, in addition to paragraph (e)(9) of this section, the

recordkeeping requirements specified in § 63.1109(g), and the reporting requirements specified in § 63.1110(e)(6). For purposes of compliance with this paragraph, the phrase "Except for equipment needed for safety purposes such as pressure relief devices, low leg drains, high point bleeds, analyzer vents, and open-ended valves or lines" in § 63.983(a)(3) does not apply; instead, the exemptions specified in paragraph (e)(6)(i) and (ii) of this section apply.

(i) Except for pressure relief devices subject to 40 CFR 63.1107(h)(4), equipment such as low leg drains and equipment subject to the requirements specified in paragraph (f) of Table 7 to § 63.1103(e) are not subject to this paragraph (e)(6) of this section.

(ii) Open-ended valves or lines that use a cap, blind flange, plug, or second valve and follow the requirements specified in § 60.482–6(a)(2), (b), and (c) or follow requirements codified in another regulation that are the same as § 60.482–6(a)(2), (b), and (c) are not subject to this paragraph (e)(6) of this section.

(7) *Decoking operation standards for ethylene cracking furnaces.* Beginning no later than the compliance dates specified in § 63.1102(c), the owner or operator must comply with paragraph (e)(7)(i) of this section and also use at least two of the control measures specified in paragraphs (e)(7)(ii) through (v) of this section to minimize coke combustion emissions from the decoking of the radiant tube(s) in each ethylene cracking furnace.

(i) During normal operations, conduct daily inspections of the firebox burners and repair all burners that are impinging on the radiant tube(s) as soon as practical, but not later than 1 calendar day after the flame impingement is found. The owner or operator may delay burner repair beyond 1 calendar day using the procedures specified in paragraphs (e)(7)(i)(A) and (B) of this section provided the repair cannot be completed during normal operations, the burner cannot be shutdown without significantly impacting the furnace heat distribution and firing rate, and action is taken to reduce flame impingement as much as possible during continued operation. An inspection may include, but is not limited to: visual inspection of the radiant tube(s) for localized bright spots (this may be confirmed with a temperature gun), use of luminescent powders injected into the burner to illuminate the flame pattern, or identifying continued localized coke build-up that causes short runtimes between decoking cycles. A repair may include, but is not limited to: Taking the burner out of service, replacing the burner, adjusting the alignment of the burner, adjusting burner configuration, making burner air corrections, repairing a malfunction of the fuel liquid removal equipment, or adding insulation around the radiant tube(s).

(A) If a shutdown for repair would cause greater emissions than the potential emissions from delaying repair, repair must be completed following the next planned decoking operation (and before returning the ethylene cracking furnace back to normal operations) or during the next ethylene cracking furnace complete shutdown (when the ethylene cracking furnace firebox is taken completely off-line), whichever is earlier.

(B) If a shutdown for repair would cause lower emissions than the potential emissions from delaying repair, then shutdown of the ethylene cracking furnace must immediately commence and the repair must be completed before returning the ethylene cracking furnace back to normal operations.

(ii) During decoking operations, beginning before the expected end of the air-in decoke time, continuously monitor (or use a gas detection tube or equivalent sample technique every three hours to monitor) the CO_2 concentration in the combined decoke effluent downstream of the last component being decoked for an indication that the coke combustion in the ethylene cracking furnace radiant tube(s) is complete. The owner or operator must immediately initiate procedures to stop the coke combustion once the CO_2 concentration at the outlet consistently reaches a level that indicates combustion of coke is complete and site decoke completion assurance procedures have been concluded.

(iii) During decoking operations, continuously monitor the temperature at the radiant tube(s) outlet when air is being introduced to ensure the coke combustion occurring inside the radiant tube(s) is not so aggressive (*i.e.*, too hot) that it damages either the radiant tube(s) or ethylene cracking furnace isolation valve(s). The owner or operator must immediately initiate procedures to reduce the temperature at the radiant tube(s) outlet once the temperature reaches a level that indicates combustion of coke inside the radiant tube(s) is too aggressive.

(iv) After decoking, but before returning the ethylene cracking furnace back to normal operations, verify that decoke air is no longer being added.

(v) After decoking, but before returning the ethylene cracking furnace back to normal operations and/or during normal operations, inject materials into the steam or feed to reduce coke formation inside the radiant tube(s) during normal operation.

(8) *Ethylene cracking furnace isolation valve inspections.* Beginning no later than the compliance dates specified in § 63.1102(c), the owner or operator must conduct ethylene cracking furnace isolation valve inspections as specified in paragraphs (e)(8)(i) and (ii) of this section.

(i) Prior to decoking operation, inspect the applicable ethylene cracking furnace isolation valve(s) to confirm that the radiant tube(s) being decoked is completely isolated from the ethylene production process so that no emissions generated from decoking operations are sent to the ethylene production process. If poor isolation is identified, then the owner or operator must rectify the isolation issue prior to continuing decoking operations to prevent leaks into the ethylene production process.

(ii) Prior to returning the ethylene cracking furnace to normal operations after a decoking operation, inspect the applicable ethylene cracking furnace isolation valve(s) to confirm that the radiant tube(s) that was decoked is completely isolated from the decoking pot or furnace firebox such that no emissions are sent from the radiant tube(s) to the decoking pot or furnace firebox once the ethylene cracking furnace returns to normal operation. If poor isolation is identified, then the owner or operator must rectify the isolation issue prior to continuing normal operations to prevent product from escaping to the atmosphere through the decoking pot or furnace firebox.

(9) *Startup, shutdown, and malfunction referenced provisions.* Beginning no later than the compliance dates specified in § 63.1102(c), the referenced provisions specified in paragraphs (e)(9)(i) through (xx) of this section do not apply when demonstrating compliance with paragraph (e)(3) of this section.

(i) The second sentence of § 63.181(d)(5)(i) of subpart H.

(ii) The second sentence of § 63.983(a)(5) of subpart SS.

(iii) The phrase "except during periods of start-up, shutdown and malfunction as specified in the referencing subpart" in § 63.984(a) of subpart SS.

(iv) The phrase "except during periods of start-up, shutdown and malfunction as specified in the referencing subpart" in § 63.985(a) of subpart SS.

(v) The phrase "other than start-ups, shutdowns, or malfunctions" in § 63.994(c)(1)(ii)(D) of subpart SS.

(vi) Section 63.996(c)(2)(ii) of subpart SS.

(vii) The last sentence of § 63.997(e)(1)(i) of subpart SS.

(viii) Section 63.998(b)(2)(iii) of subpart SS.

(ix) The phrase "other than periods of startups, shutdowns, and malfunctions" from § 63.998(b)(5)(i)(A) of subpart SS.

(x) The phrase "other than a start-up, shutdown, or malfunction" from § 63.998(b)(5)(i)(B)(3) of subpart SS.

(xi) The phrase "other than periods of startups, shutdowns, and malfunctions" from § 63.998(b)(5)(i)(C) of subpart SS.

(xii) The phrase "other than a start-up, shutdown, or malfunction" from § 63.998(b)(5)(ii)(C) of subpart SS.

(xiii) The phrase "except as provided in paragraphs (b)(6)(i)(A) and (B) of this section" from § 63.998(b)(6)(i) of subpart SS.

(xiv) The second sentence of § 63.998(b)(6)(ii) of subpart SS.

(xv) Section 63.998(c)(1)(ii)(D) through (G) of subpart SS.

(xvi) Section 63.998(d)(3) of subpart SS.

(xvii) The phrase "may be included as part of the startup, shutdown, and malfunction plan, as required by the referencing subpart for the source, or" from § 63.1024(f)(4)(i) of subpart UU.

(xviii) The phrase "(except periods of startup, shutdown, or malfunction)" from § 63.1026(e)(1)(ii)(A) of subpart UU.

(xix) The phrase "(except periods of startup, shutdown, or malfunction)" from § 63.1028(e)(1)(i)(A) of subpart UU.

(xx) The phrase "(except periods of startup, shutdown, or malfunction)" from § 63.1031(b)(1) of subpart UU.

(10) *Storage vessel degassing.* Beginning no later than the compliance dates specified in § 63.1102(c), for each storage vessel subject to paragraph (b) or (c) of Table 7 to § 63.1103(e), the owner or operator must comply with paragraphs (e)(10)(i) through (iii) of this section during storage vessel shutdown operations (*i.e.*, emptying and degassing of a storage vessel) until the vapor space concentration in the storage vessel is less than 10 percent of the LEL. The owner or operator must determine the LEL using process instrumentation or portable measurement devices and follow procedures for calibration and maintenance according to manufacturer's specifications.

(i) Remove liquids from the storage vessel as much as practicable;

(ii) Comply with one of the following:

(A) Reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to a flare and meet the requirements of § 63.983 and paragraphs (e)(4) and (9) of this section.

(B) Reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to any combination of non-flare control devices and meet the requirements specified in § 63.982(c)(1) and paragraph (e)(9) of this section.

(C) Reduce emissions of total organic HAP by 98 weight-percent by routing emissions to a fuel gas system or process and meet the requirements specified in § 63.982(d) and paragraph (e)(9) of this section.

(iii) Maintain records necessary to demonstrate compliance with the requirements in § 63.1108(a)(4)(ii) including, if appropriate, records of existing standard site procedures used to empty and degas (deinventory) equipment for safety purposes.

TABLE 7 TO § 63.1103(E)—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 . . .
(a) A storage vessel (as defined in § 63.1101) that stores liquid containing organic HAP.	(1) The maximum true vapor pressure of total organic HAP is ≥3.4 kilopascals but <76.6 kilopascals; and the capacity of the vessel is ≥4 cubic meters but <95 cubic meters.	(i) Fill the vessel through a submerged pipe; or (ii) Comply with the requirements for storage vessels with capacities ≥95 cubic meters.
(b) A storage vessel (as defined in § 63.1101) that stores liquid containing organic HAP.	(1) The maximum true vapor pressure of total organic HAP is ≥3.4 kilopascals but <76.6 kilopascals; and the capacity of the vessel is ≥95 cubic meters.	(i) Except as specified in paragraph (b)(1)(iii) of this table, comply with the requirements of subpart WW of this part; or (ii) Except as specified in paragraph (b)(1)(iii) of this table, reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to any combination of control devices and meet the requirements of § 63.982(a)(1). (iii) Beginning no later than the compliance dates specified in § 63.1102(c), comply with paragraph (b)(1)(iii)(A), (B), (C), or (D) of this table, and (e)(10) of this section. (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 a flare and meet the requirements of § 63.983 and paragraphs (e)(4) and (9) of this section; or (C) Reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to any combination of non-flare control devices and meet the requirements specified in § 63.982(c)(1) and (e)(9) of this section; or (D) Reduce emissions of total organic HAP by 98 weight-percent by routing emissions to a fuel gas system[a] or process and meet the requirements specified in § 63.982(d) and (e)(9) of this section.

TABLE 7 TO § 63.1103(E)—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE AN ETHYLENE PRODUCTION EXISTING OR NEW AFFECTED SOURCE?—Continued

If you own or operate . . .	And if . . .	Then you must . . .
(c) A storage vessel (as defined in § 63.1101) that stores liquid containing organic HAP.	(1) The maximum true vapor pressure of total organic HAP is ≥76.6 kilopascals.	(i) Except as specified in paragraph (c)(1)(ii) of this table, reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to any combination of control devices and meet the requirements of § 63.982(a)(1). (ii) Beginning no later than the compliance dates specified in § 63.1102(c), comply with paragraph (c)(1)(ii)(A), (B), or (C) of this table, and (e)(10) of this section. (A) Reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to a flare and meet the requirements of § 63.983 and paragraphs (e)(4) and (9) of this section; or (B) Reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to any combination of non-flare control devices and meet the requirements specified in § 63.982(c)(1) and (e)(9) of this section; or (C) Reduce emissions of total organic HAP by 98 weight-percent by routing emissions to a fuel gas system[a] or process and meet the requirements specified in § 63.982(d) and (e)(9) of this section.
(d) An ethylene process vent (as defined in paragraph (e)(2) of this section).	(1) The process vent is at an existing source and the vent stream has a flow rate ≥0.011 scmm and a total organic HAP concentration ≥50 parts per million by volume on a dry basis; or the process vent is at a new source and the vent stream has a flow rate ≥0.008 scmm and a total organic HAP concentration ≥30 parts per million by volume on a dry basis.	(i) Except as specified in paragraph (d)(1)(ii) of this table, 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 on a dry basis corrected to 3% oxygen; whichever is less stringent, by venting emissions through a closed vent system to any combination of control devices and meet the requirements specified in § 63.982(b) and (c)(2). (ii) Beginning no later than the compliance dates specified in § 63.1102(c), comply with the maintenance vent requirements specified in paragraph (e)(5) of this section and either paragraph (d)(1)(ii)(A) or (B) of this table. (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 on a dry basis corrected to 3-percent oxygen; whichever is less stringent, by venting emissions through a closed vent system to a flare and meet the requirements of § 63.983 and paragraphs (e)(4) and (9) of this section; or (B) 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 on a dry basis corrected to 3-percent oxygen; whichever is less stringent, by venting emissions through a closed vent system to any combination of non-flare control devices and meet the requirements specified in § 63.982(c)(2) and (e)(9) of this section.
(e) A transfer rack (as defined in paragraph (e)(2) of this section).	(1) Materials loaded have a true vapor pressure of total organic HAP ≥3.4 kilopascals and ≥76 cubic meters per day (averaged over any consecutive 30-day period) of HAP-containing material is loaded.	(i) 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 on a dry basis corrected to 3-percent oxygen; whichever is less stringent, by venting emissions through a closed vent system to any combination of control devices as specified in § 63.1105 and meet the requirements specified in paragraph (e)(9) of this section.; or

TABLE 7 TO § 63.1103(E)—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE AN ETHYLENE PRODUCTION EXISTING OR NEW AFFECTED SOURCE?—Continued

If you own or operate . . .	And if . . .	Then you must . . .
		(ii) Install 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 and meet the requirements specified in paragraph (e)(9) of this section.[a]
(f) Equipment (as defined in § 63.1101) that contains or contacts organic HAP.	(1) The equipment contains or contacts ≥5 weight-percent organic HAP; and the equipment is not in vacuum service.	(i) Except as specified in paragraph (f)(1)(ii) of this table, comply with the requirements of subpart UU of this part. (ii) Beginning no later than the compliance dates specified in § 63.1102(c), comply with the requirements of paragraph (e)(9) of this section and subpart UU of this part, except instead of complying with the pressure relief device requirements of § 63.1030 of subpart UU, meet the requirements of § 63.1107(h), and in lieu of the flare requirement of § 63.1034(b)(2)(iii), comply with the requirements specified in paragraph (e)(4) of this section.[a]
(g) Processes that generate waste (as defined in paragraph (e)(2) of this section.	(1) The waste stream contains any of the following HAP: Benzene, cumene, ethyl benzene, hexane, naphthalene, 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 production unit waste stream requirements, terms have the meanings specified in subpart XX.
(h) A heat exchange system (as defined in § 63.1082(b)).	.....	Comply with the heat exchange system requirements of subpart XX of this part.
(i) A closed vent system that contains one or more bypass lines.	(1) The bypass line could divert a vent stream directly to the atmosphere or to a control device not meeting the requirements in this table.	Beginning no later than the compliance dates specified in § 63.1102(c), comply with the requirements specified in paragraphs (e)(6) and (9) of this section.
(j) A decoking operation associated with an ethylene cracking furnace.	.....	Beginning no later than the compliance dates specified in § 63.1102(c), comply with the requirements specified in paragraphs (e)(7) and (8) of this section.

[a] Beginning no later than the compliance dates specified in § 63.1102(c), any flare using fuel gas from a fuel gas system, of which 50 percent or more of the fuel gas is derived from an ethylene production unit as determined on an annual average basis, must be in compliance with paragraph (e)(4) of this section.

* * * * *

■ 20. Section 63.1104 is amended by revising paragraph (c) to read as follows:

§ 63.1104 Process vents from continuous unit operations: applicability assessment procedures and methods.

* * * * *

(c) *Applicability assessment requirement.* The TOC or organic HAP concentrations, process vent volumetric flow rates, process vent heating values, process vent TOC or organic HAP emission rates, halogenated process vent determinations, process vent TRE index values, and engineering assessments for process vent control applicability assessment requirements are to be determined during maximum representative operating conditions for the process, except as provided in paragraph (d) of this section, or unless the Administrator specifies or approves alternate operating conditions. For acrylic and modacrylic fiber production affected sources, polycarbonate production affected sources, and ethylene production affected sources, operations during periods of malfunction shall not constitute representative conditions for the purpose of an applicability test. For all other affected sources, operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of an applicability test.

* * * * *

■ 21. Section 63.1105 is amended by revising paragraph (a) introductory text and adding paragraph (a)(5) to read as follows:

§ 63.1105 Transfer racks.

(a) *Design requirements.* Except as specified in paragraph (a)(5) of this section, the owner or operator shall equip each transfer rack with one of the control options listed in paragraphs (a)(1) through (5) of this section.

* * * * *

(5) Beginning no later than the compliance dates specified in § 63.1102(c), if emissions are vented through a closed vent system to a flare at an ethylene production affected source, then the owner or operator must comply with the requirements specified in § 63.1103(e)(4) instead of the requirements in § 63.987 and the provisions regarding flare compliance assessments at § 63.997(a) through (c).

* * * * *

■ 22. Section 63.1107 is amended by revising paragraph (a) and adding paragraph (h) to read as follows:

§ 63.1107 Equipment leaks.

(a) Each piece of equipment within a process unit that can reasonably be expected to contain equipment in organic HAP service is presumed to be in organic HAP service unless an owner or operator demonstrates that the piece of equipment is not in organic HAP service. For a piece of equipment to be considered not in organic HAP service, it must be determined that the percent organic HAP content can be reasonably expected not to exceed the percent by weight control applicability criteria specified in § 63.1103 for an affected source on an annual average basis. For purposes of determining the percent

organic HAP content of the process fluid that is contained in or contacts equipment, Method 18 of 40 CFR part 60, appendix A shall be used. For purposes of determining the percent organic HAP content of the process fluid that is contained in or contacts equipment for the ethylene production affected sources, the following methods shall be used for equipment: For equipment in gas and vapor service, as that term is defined in Subpart UU of this part, shall use Method 18 of 40 CFR part 60, appendix A; for equipment in liquid service, as that term is defined in Subpart UU of this part, shall use a combination of Method 18 of 40 CFR part 60, appendix A, SW–846–8260B (incorporated by reference, see § 63.14); and SW–846–8270D (incorporated by reference, see § 63.14), as appropriate.

* * * * *

(h) *Ethylene production pressure release requirements.* Beginning no later than the compliance dates specified in § 63.1102(c), except as specified in paragraph (h)(4) of this section, owners or operators of ethylene production affected sources must comply with the requirements specified in paragraphs (h)(1) and (2) of this section for pressure relief devices, such as relief valves or rupture disks, in organic HAP gas or vapor service instead of the pressure relief device requirements of § 63.1030 of subpart UU or § 63.165 of subpart H. Beginning no later than the compliance dates specified in § 63.1102(c), except as specified in paragraphs (h)(4) and (5) of this section, the owner or operator must also comply with the requirements specified in paragraphs (h)(3) and (6) through (8) of this section for all pressure relief devices.

(1) *Operating requirements.* Except during a pressure release, operate each pressure relief device in organic HAP gas or vapor service with an instrument reading of less than 500 ppm above background as measured by the method in § 63.1023(b) of subpart UU or § 63.180(b) and (c) of subpart H.

(2) *Pressure release requirements.* For pressure relief devices in organic HAP gas or vapor service, the owner or operator must comply with the applicable requirements in paragraphs (h)(2)(i) through (iii) of this section following a pressure release.

(i) If the pressure relief device does not consist of or include a rupture disk, conduct instrument monitoring, as specified in § 63.1023(b) of subpart UU or § 63.180(b) and (c) of subpart H, no later than 5 calendar days after the pressure relief device returns to organic HAP gas or vapor service following a pressure release to verify that the pressure relief device is operating with an instrument reading of less than 500 ppm.

(ii) If the pressure relief device includes a rupture disk, either comply with the requirements in paragraph (h)(2)(i) of this section (and do not replace the rupture disk) or install a replacement disk as soon as practicable after a pressure release, but no later than 5 calendar days after the pressure release.

(iii) If the pressure relief device consists only of a rupture disk, install a replacement disk as soon as practicable after a pressure release, but no later than 5 calendar days after the pressure release. The owner or operator must not initiate startup of the equipment served by the rupture disk until the rupture disc is replaced.

(3) *Pressure release management.* Except as specified in paragraphs (h)(4) and (5) of this section, the owner or operator must comply with the requirements specified in paragraphs (h)(3)(i) through (v) of this section for all pressure relief devices in organic HAP service.

(i) The owner or operator must equip each affected pressure relief device with a device(s) or use a monitoring system that is capable of:

(A) Identifying the pressure release;

(B) Recording the time and duration of each pressure release; and

(C) Notifying operators immediately that a pressure release is occurring. The device or monitoring system must be either specific to the pressure relief device itself or must be associated with the process system or piping, sufficient to indicate a pressure release to the atmosphere. Examples of these types of devices and systems include, but are not limited to, a rupture disk indicator, magnetic sensor, motion detector on the pressure relief valve stem, flow monitor, or pressure monitor.

(ii) The owner or operator must apply at least three redundant prevention measures to each affected pressure relief device and document these measures. Examples of prevention measures include:

(A) Flow, temperature, liquid level and pressure indicators with deadman switches, monitors, or automatic actuators. Independent, non-duplicative systems within this category count as separate redundant prevention measures.

(B) Documented routine inspection and maintenance programs and/or operator training (maintenance programs and operator training may count as only one redundant prevention measure).

(C) Inherently safer designs or safety instrumentation systems.

(D) Deluge systems.

(E) Staged relief system where the initial pressure relief device (with lower set release pressure) discharges to a flare or other closed vent system and control device.

(iii) If any affected pressure relief device releases to atmosphere as a result of a pressure release event, the owner or operator must perform root cause analysis and corrective action analysis according to the requirement in paragraph (h)(6) of this section and implement corrective actions according to the requirements in paragraph (h)(7) of this section. The owner or operator must also calculate the quantity of organic HAP released during each pressure release event and report this quantity as required in § 63.1110(e)(8)(iii). Calculations may be based on data from the pressure relief device monitoring alone or in combination with process parameter monitoring data and process knowledge.

(iv) The owner or operator must determine the total number of release events that occurred during the calendar year for each affected pressure relief device separately. The owner or operator must also determine the total number of release events for each pressure relief device for which the root cause analysis concluded that the root cause was a force majeure event, as defined in § 63.1103(e)(2).

(v) Except for pressure relief devices described in paragraphs (h)(4) and (5) of this section, the following release events from an affected pressure relief device are a violation of the pressure release management work practice standards.

(A) Any release event for which the root cause of the event was determined to be operator error or poor maintenance.

(B) A second release event not including force majeure events from a single pressure relief device in a 3-calendar year period for the same root cause for the same equipment.

(C) A third release event not including force majeure events from a single pressure relief device in a 3-calendar year period for any reason.

(4) *Pressure relief devices routed to a control device, process, fuel gas system, or drain system.* (i) If all releases and potential leaks from a pressure relief device are routed through a closed vent system to a control device, back into the process, a fuel gas system, or drain system, then the owner or operator is not required to comply with paragraph (h)(1), (2), or (3) of this section.

(ii) Before the compliance dates specified in § 63.1102(c), both the

closed vent system and control device (if applicable) referenced in paragraph (h)(4)(i) of this section must meet the applicable requirements specified in § 63.982(b) and (c)(2). Beginning no later than the compliance dates specified in § 63.1102(c), both the closed vent system and control device (if applicable) referenced in paragraph (h)(4)(i) of this section must meet the applicable requirements specified in §§ 63.982(c)(2), 63.983, and 63.1103(e)(4). For purposes of compliance with this paragraph, the phrase ''Except for equipment needed for safety purposes such as pressure relief devices'' in § 63.983(a)(3) does not apply.

(iii) The drain system (if applicable) referenced in paragraph (h)(4)(i) of this section must meet the applicable requirements specified in § 61.346 or § 63.136.

(5) *Pressure relief devices exempted from pressure release management requirements.* The following types of pressure relief devices are not subject to the pressure release management requirements in paragraph (h)(3) of this section.

(i) Pressure relief devices in heavy liquid service, as defined in § 63.1020 of subpart UU.

(ii) Thermal expansion relief valves.

(iii) Pressure relief devices on mobile equipment.

(iv) Pilot-operated pressure relief devices where the primary release valve is routed through a closed vent system to a control device or back into the process, a fuel gas system, or drain system.

(v) Balanced bellows pressure relief devices where the primary release valve is routed through a closed vent system to a control device or back into the process, a fuel gas system, or drain system.

(6) *Root cause analysis and corrective action analysis.* A root cause analysis and corrective action analysis must be completed as soon as possible, but no later than 45 days after a release event. Special circumstances affecting the number of root cause analyses and/or corrective action analyses are provided in paragraphs (h)(6)(i) through (iv) of this section.

(i) You may conduct a single root cause analysis and corrective action analysis for a single emergency event that causes two or more pressure relief devices that are installed on the same equipment to release.

(ii) You may conduct a single root cause analysis and corrective action analysis for a single emergency event that causes two or more pressure relief devices to release, regardless of the equipment served, if the root cause is reasonably expected to be a *force majeure* event, as defined in § 63.1103(e)(2).

(iii) Except as provided in paragraphs (h)(6)(i) and (ii) of this section, if more than one pressure relief device has a release during the same time period, an initial root cause analysis must be conducted separately for each pressure relief device that had a release. If the initial root cause analysis indicates that the release events have the same root cause(s), the initial separate root cause analyses may be recorded as a single root cause analysis and a single corrective action analysis may be conducted.

(7) *Corrective action implementation.* Each owner or operator required to conduct a root cause analysis and corrective action analysis as specified in paragraphs (h)(3)(iii) and (6) of this section, must implement the corrective action(s) identified in the corrective action analysis in accordance with the applicable requirements in paragraphs (h)(7)(i) through (iii) of this section.

(i) All corrective action(s) must be implemented within 45 days of the event for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If an owner or operator concludes that no corrective action should be implemented, the owner or operator must record and explain the basis for that conclusion no later than 45 days following the event.

(ii) For corrective actions that cannot be fully implemented within 45 days following the event for which the root cause and corrective action analyses were required, the owner or operator must develop an implementation schedule to complete the corrective action(s) as soon as practicable.

(iii) No later than 45 days following the event for which a root cause and corrective action analyses were required, the owner or operator must record the corrective action(s) completed to date, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.

(8) *Flowing pilot-operated pressure relief devices.* For ethylene production affected sources that commenced construction or reconstruction on or before October 9, 2019, owners or operators are prohibited from installing a flowing pilot-operated pressure relief device or replacing any pressure relief device with a flowing pilot-operated pressure relief device after July 6, 2023. For ethylene production affected sources that commenced construction or reconstruction after October 9, 2019, owners or operators are prohibited from installing and operating flowing pilot-operated pressure relief devices. For purpose of compliance with this paragraph, a flowing pilot-operated pressure relief device means the type of pilot-operated pressure relief device where the pilot discharge vent continuously releases emissions to the atmosphere when the pressure relief device is actuated.

■ 23. Section 63.1108 is amended by revising paragraphs (a) introductory text, (a)(4), (b)(1)(ii), (b)(2) introductory text, (b)(3), (b)(4)(i) introductory text, and (b)(4)(ii)(B) to read as follows:

§ 63.1108 Compliance with standards and operation and maintenance requirements.

(a) *Requirements.* The requirements of paragraphs (a)(1), (2), and (5) of this section apply to all affected sources except acrylic and modacrylic fiber production affected sources, polycarbonate production affected sources, and beginning no later than the compliance dates specified in § 63.1102(c), ethylene production affected sources. The requirements of paragraph (a)(4) of this section apply only to acrylic and modacrylic fiber production affected sources, polycarbonate production affected sources and beginning no later than the compliance dates specified in § 63.1102(c), ethylene production affected sources. The requirements of paragraphs (a)(3), (6), and (7) of this section apply to all affected sources.

* * * * *

(4)(i) For acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources, and beginning no later than the compliance dates specified in § 63.1102(c), ethylene production affected sources, the emission limitations and established parameter ranges of this part shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) resulting in cessation of the emissions to which this subpart applies. Equipment leak requirements shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) in which the lines are drained and depressurized resulting in cessation of the emissions to which the equipment leak requirements apply.

(ii) At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty

to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the affected source.

* * * * *

(b) * * *

(1) * * *

(ii) Excused excursions are not allowed for acrylic and modacrylic fiber production affected sources, polycarbonate production affected sources, and beginning no later than the compliance dates specified in § 63.1102(c), ethylene production affected sources. For all other affected sources, including ethylene production affected sources prior to the compliance dates specified in § 63.1102(c), an excused excursion, as described in § 63.998(b)(6)(ii), is not a violation.

(2) *Parameter monitoring: Excursions.* An excursion is not a violation in cases where continuous monitoring is required and the excursion does not count toward the number of excused excursions (as described in § 63.998(b)(6)(ii)), if the conditions of paragraph (b)(2)(i) or (ii) of this section are met, except that the conditions of paragraph (b)(2)(i) of this section do not apply for acrylic and modacrylic fiber production affected sources, polycarbonate production affected sources, and beginning no later than the compliance dates specified in § 63.1102(c), ethylene production affected sources. Nothing in this paragraph shall be construed to allow or excuse a monitoring parameter excursion caused by any activity that violates other applicable provisions of this subpart or a subpart referenced by this subpart.

* * * * *

(3) *Operation and maintenance procedures.* Determination of whether acceptable operation and maintenance procedures are being used will be based on information available to the Administrator. This information may include, but is not limited to, monitoring results, review of operation and maintenance procedures (including the startup, shutdown, and malfunction plan under § 63.1111, if applicable), review of operation and maintenance records, and inspection of the affected source, and alternatives approved as specified in § 63.1113.

(4) * * *

(i) *Applicability assessments.* Unless otherwise specified in a relevant test method required to assess control applicability, each test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in this subpart. The arithmetic mean of the results of the three runs shall apply when assessing applicability. Upon receiving approval from the Administrator, results of a test run may be replaced with results of an additional test run if it meets the criteria specified in paragraphs (b)(4)(i)(A) through (D) of this section.

* * * * *

(ii) * * *

(B) For acrylic and modacrylic fiber production affected sources, polycarbonate production affected sources, and beginning no later than the compliance dates specified in § 63.1102(c), ethylene production affected sources, performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown unless specified by the Administrator or an applicable subpart. The owner or operator may not conduct performance tests during periods of malfunction. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

* * * * *

■ 24. Section 63.1109 is amended by adding paragraphs (e) through (i) to read as follows:

§ 63.1109 Recordkeeping requirements.

* * * * *

(e) *Ethylene production flare records.* For each flare subject to the requirements in § 63.1103(e)(4), owners or operators must keep records specified in paragraphs (e)(1) through (15) of this section in lieu of the information required in § 63.998(a)(1) of subpart SS.

(1) Retain records of the output of the monitoring device used to detect the presence of a pilot flame or flare flame as required in § 63.670(b) of subpart CC and the presence of a pilot flame as required in § 63.1103(e)(4)(vii)(D) for a minimum of 2 years. Retain records of each 15-minute block during which there was at least one minute that no pilot flame or flare flame is present when regulated material is routed to a flare for a minimum of 5 years. For each pressure-assisted multi-point flare that uses cross-lighting, retain records of each 15-minute block during which there was at least one minute that no pilot flame is present on each stage when regulated material is routed to a flare for a minimum of 5 years. You may reduce the collected minute-by-minute data to a 15-minute block basis with an indication of whether there was at least one minute where no pilot flame or flare flame was present.

(2) Retain records of daily visible emissions observations as specified in paragraphs (e)(2)(i) through (iv) of this section, as applicable, for a minimum of 3 years.

(i) To determine when visible emissions observations are required, the record must identify all periods when regulated material is vented to the flare.

(ii) If visible emissions observations are performed using Method 22 of 40 CFR part 60, appendix A–7, then the record must identify whether the visible emissions observation was performed, the results of each observation, total duration of observed visible emissions, and whether it was a 5-minute or 2-hour observation. Record the date and start time of each visible emissions observation.

(iii) If a video surveillance camera is used pursuant to § 63.670(h)(2) of subpart CC, then the record must include all video surveillance images recorded, with time and date stamps.

(iv) For each 2-hour period for which visible emissions are observed for more than 5 minutes in 2 consecutive hours, then the record must include the date and start and end time of the 2-hour period and an estimate of the cumulative number of minutes in the 2-hour period for which emissions were visible.

(3) The 15-minute block average cumulative flows for flare vent gas and, if applicable, total steam, perimeter assist air, and premix assist air specified to be monitored under § 63.670(i) of subpart CC, along with the date and time interval for the 15-minute block. If multiple monitoring locations are used to determine cumulative vent gas flow, total steam, perimeter assist air, and premix assist air, then retain records of the 15-minute block average flows for each monitoring location for a minimum of 2 years, and retain records of the 15-minute block average cumulative flows that are used in subsequent calculations

for a minimum of 5 years. If pressure and temperature monitoring is used, then retain records of the 15-minute block average temperature, pressure, and molecular weight of the flare vent gas or assist gas stream for each measurement location used to determine the 15-minute block average cumulative flows for a minimum of 2 years, and retain records of the 15-minute block average cumulative flows that are used in subsequent calculations for a minimum of 5 years.

(4) The flare vent gas compositions specified to be monitored under § 63.670(j) of subpart CC. Retain records of individual component concentrations from each compositional analysis for a minimum of 2 years. If an NHVvg analyzer is used, retain records of the 15-minute block average values for a minimum of 5 years.

(5) Each 15-minute block average operating parameter calculated following the methods specified in § 63.670(k) through (n) of subpart CC, as applicable.

(6) All periods during which operating values are outside of the applicable operating limits specified in § 63.670(d) through (f) of subpart CC and § 63.1103(e)(4)(vii) when regulated material is being routed to the flare.

(7) All periods during which the owner or operator does not perform flare monitoring according to the procedures in § 63.670(g) through (j) of subpart CC.

(8) For pressure-assisted multi-point flares, if a stage of burners on the flare uses cross-lighting, then a record of any changes made to the distance between burners.

(9) For pressure-assisted multi-point flares, all periods when the pressure monitor(s) on the main flare header show burners are operating outside the range of the manufacturer's specifications. Indicate the date and time for each period, the pressure measurement, the stage(s) and number of burners affected, and the range of manufacturer's specifications.

(10) For pressure-assisted multi-point flares, all periods when the staging valve position indicator monitoring system indicates a stage of the pressure-assisted multi-point flare should not be in operation and when a stage of the pressure-assisted multi-point flare should be in operation and is not. Indicate the date and time for each period, whether the stage was supposed to be open, but was closed or vice versa, and the stage(s) and number of burners affected.

(11) Records of periods when there is flow of vent gas to the flare, but when there is no flow of regulated material to the flare, including the start and stop time and dates of periods of no regulated material flow.

(12) Records when the flow of vent gas exceeds the smokeless capacity of the flare, including start and stop time and dates of the flaring event.

(13) Records of the root cause analysis and corrective action analysis conducted as required in § 63.670(o)(3) of subpart CC and § 63.1103(e)(4)(iv), including an identification of the affected flare, the date and duration of the event, a statement noting whether the event resulted from the same root cause(s) identified in a previous analysis and either a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary under § 63.670(o)(5)(i) of subpart CC.

(14) For any corrective action analysis for which implementation of corrective actions are required in § 63.670(o)(5) of subpart CC, a description of the corrective action(s) completed within the first 45 days following the discharge and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.

(15) Records described in § 63.10(b)(2)(vi).

(f) *Ethylene production maintenance vent records.* For each maintenance vent opening subject to the requirements in § 63.1103(e)(5), the owner or operator must keep the applicable records specified in (f)(1) through (5) of this section.

(1) The owner or operator must maintain standard site procedures used to deinventory equipment for safety purposes (*e.g.*, hot work or vessel entry procedures) to document the procedures used to meet the requirements in § 63.1103(e)(5). The current copy of the procedures must be retained and available on-site at all times. Previous versions of the standard site procedures, as applicable, must be retained for 5 years.

(2) If complying with the requirements of § 63.1103(e)(5)(i)(A) and the LEL at the time of the vessel opening exceeds 10 percent, records that identify the maintenance vent, the process units or equipment associated with the maintenance vent, the date of maintenance vent opening, and the LEL at the time of the vessel opening.

(3) If complying with the requirements of § 63.1103(e)(5)(i)(B) and either the vessel pressure at the time of the vessel opening exceeds 5 psig or the LEL at the time of the active purging was initiated exceeds 10 percent, records that identify the maintenance vent, the process units or equipment associated with the maintenance vent, the date of maintenance vent opening, the pressure of the vessel or equipment at the time of discharge to the atmosphere and, if applicable, the LEL of the vapors in the equipment when active purging was initiated.

(4) If complying with the requirements of § 63.1103(e)(5)(i)(C), records of the estimating procedures used to determine the total quantity of VOC in equipment and the type and size limits of equipment that contain less than 50 pounds of VOC at the time of maintenance vent opening. For each maintenance vent opening of equipment that contains greater than 50 pounds of VOC for which the deinventory procedures specified in paragraph (f)(1) of this section are not followed or for which the equipment opened exceeds the type and size limits established in the records specified in this paragraph, records that identify the maintenance vent, the process units or equipment associated with the maintenance vent, the date of maintenance vent opening, and records used to estimate the total quantity of VOC in the equipment at the time the maintenance vent was opened to the atmosphere.

(5) If complying with the requirements of § 63.1103(e)(5)(i)(D), identification of the maintenance vent, the process units or equipment associated with the maintenance vent, records documenting actions taken to comply with other applicable alternatives and why utilization of this alternative was required, the date of maintenance vent opening, the equipment pressure and LEL of the vapors in the equipment at the time of discharge, an indication of whether active purging was performed and the pressure of the equipment during the installation or removal of the blind if active purging was used, the duration the maintenance vent was open during the blind installation or removal process, and records used to estimate the total quantity of VOC in the equipment at the time the maintenance vent was opened to the atmosphere for each applicable maintenance vent opening.

(g) *Ethylene production bypass line records.* For each flow event from a bypass line subject to the requirements in § 63.1103(e)(6), the owner or operator must maintain records sufficient to determine whether or not the detected flow included flow requiring control. For each flow event from a bypass line requiring control that is released either directly to the atmosphere or to a control device not meeting the requirements specified in Table 7 to § 63.1103(e), the owner or operator must include an estimate of the volume of

gas, the concentration of organic HAP in the gas and the resulting emissions of organic HAP that bypassed the control device using process knowledge and engineering estimates.

(h) *Decoking operation of ethylene cracking furnace records.* For each decoking operation of an ethylene cracking furnace subject to the standards in § 63.1103(e)(7) and (8), the owner or operator must keep the records specified in paragraphs (h)(1) through (6) of this section.

(1) Records that document the day and time each inspection specified in § 63.1103(e)(7)(i) took place, the results of each inspection, and any repairs made to correct the flame impingement; and for any repair that is delayed beyond 1 calendar day, the records specified in paragraphs (h)(1)(i) through (iii) of this section.

(i) The reason for the delay.

(ii) An estimate of the emissions from shutdown for repair and an estimate of the emissions likely to result from delay of repair, and whether the requirements at § 63.1103(e)(7)(i)(A) or (B) were met.

(iii) The date the repair was completed or, if the repair has not been completed, a schedule for completing the repair.

(2) If the owner or operator chooses to monitor the CO_2 concentration during decoking as specified in § 63.1103(e)(7)(ii), then for each decoking cycle, records must be kept for all measured CO_2 concentration values beginning before the expected end of the air-in decoke time, the criterion used to begin the CO_2 monitoring, and the target used to indicate combustion is complete. The target record should identify any time period the site routinely extends air addition beyond the specified CO_2 concentration and any decoke completion assurance procedures used to confirm all coke has been removed prior to stopping air addition that occurs after the CO_2 target is reached.

(3) If the owner or operator chooses to monitor the temperature at the radiant tube(s) outlet during decoking as specified in § 63.1103(e)(7)(iii), then for each decoking cycle, records must be kept for all measured temperature values and the target used to indicate a reduction in temperature of the inside of the radiant tube(s) is necessary.

(4) If the owner or operator chooses to comply with § 63.1103(e)(7)(iv), then records must be kept that document that decoke air is no longer being added after each decoking cycle.

(5) If the owner or operator chooses to treat steam or feed to reduce coke formation as specified in § 63.1103(e)(7)(v), then records must be kept that document that the planned treatment occurred.

(6) For each decoking operation of an ethylene cracking furnace subject to the requirements in § 63.1103(e)(8), the owner or operator must keep records that document the day each inspection took place and the results of each inspection where an isolation problem was identified including any repairs made to correct the problem.

(i) *Ethylene production pressure relief devices records.* For each pressure relief device subject to the pressure release management work practice standards in § 63.1107(h)(3), the owner or operator must keep the records specified in paragraphs (i)(1) through (3) of this section.

(1) Records of the prevention measures implemented as required in § 63.1107(h)(3)(ii).

(2) Records of the number of releases during each calendar year and the number of those releases for which the root cause was determined to be a force majeure event. Keep these records for the current calendar year and the past five calendar years.

(3) For each release to the atmosphere, the owner or operator must keep the records specified in paragraphs (i)(3)(i) through (iv) of this section.

(i) The start and end time and date of each pressure release to the atmosphere.

(ii) Records of any data, assumptions, and calculations used to estimate of the mass quantity of each organic HAP released during the event.

(iii) Records of the root cause analysis and corrective action analysis conducted as required in § 63.1107(h)(3)(iii), including an identification of the affected pressure relief device, a statement noting whether the event resulted from the same root cause(s) identified in a previous analysis and either a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary under § 63.1107(h)(7)(i).

(iv) For any corrective action analysis for which implementation of corrective actions are required in § 63.1107(h)(7), a description of the corrective action(s) completed within the first 45 days following the discharge and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.

■ 25. Section 63.1110 is amended by:

■ a. Revising paragraphs (a) introductory text, (a)(7), and (a)(9) introductory text;

■ b. Adding paragraph (a)(10);

■ c. Revising paragraphs (d)(1) introductory text and (d)(1)(i);

■ d. Adding paragraphs (d)(1)(iv) and (v);

■ e. Revising paragraph (e)(1);

■ f. Adding paragraphs (e)(4) through (8); and

■ g. Revising paragraphs (g)(1) and (2).

The revisions and additions read as follows:

§ 63.1110 Reporting requirements.

(a) *Required reports.* Each owner or operator of an affected source subject to this subpart shall submit the reports listed in paragraphs (a)(1) through (8) of this section, as applicable. Each owner or operator of an acrylic and modacrylic fiber production affected source or polycarbonate production affected source subject to this subpart shall also submit the reports listed in paragraph (a)(9) of this section in addition to the reports listed in paragraphs (a)(1) through (8) of this section, as applicable. Beginning no later than the compliance dates specified in § 63.1102(c), each owner or operator of an ethylene production affected source subject to this subpart shall also submit the reports listed in paragraph (a)(10) of this section in addition to the reports listed in paragraphs (a)(1) through (8) of this section, as applicable.

* * * * *

(7) Startup, Shutdown, and Malfunction Reports described in § 63.1111 (except for acrylic and modacrylic fiber production affected sources, ethylene production affected sources, and polycarbonate production affected sources).

* * * * *

(9) Within 60 days after the date of completing each performance test (as defined in § 63.2), the owner or operator must submit the results of the performance tests, including any associated fuel analyses, required by this subpart according to the methods specified in paragraph (a)(9)(i) or (ii) of this section.

* * * * *

(10)(i) Beginning no later than the compliance dates specified in § 63.1102(c), within 60 days after the date of completing each performance test required by this subpart, the owner or operator must submit the results of the performance test following the procedures specified in paragraphs (a)(10)(i)(A) through (C) of this section.

(A) *Data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test.* Submit the results of the performance test to the EPA via

CEDRI, which can be accessed through the EPA's CDX (*https://cdx.epa.gov/*). The data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA's ERT website.

(B) *Data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test.* The results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

(C) *CBI.* If you claim some of the information submitted under paragraph (a)(10)(i)(A) or (B) of this section is CBI, then the owner or operator must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404–02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via EPA's CDX as described in paragraphs (a)(10)(i)(A) and (B) of this section.

(ii) Beginning no later than the compliance dates specified in § 63.1102(c), the owner or operator must submit all subsequent Notification of Compliance Status reports required under paragraph (a)(4) of this section in PDF format to the EPA via CEDRI, which can be accessed through EPA's CDX (*https://cdx.epa.gov/*). All subsequent Periodic Reports required under paragraph (a)(5) of this section must be submitted to the EPA via CEDRI using the appropriate electronic report template on the CEDRI website (*https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri*) for this subpart beginning no later than the compliance dates specified in § 63.1102(c) or once the report template has been available on the CEDRI website for one year, whichever date is later. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. If you claim some of the information required to be submitted via CEDRI is CBI, then submit a complete report, including information claimed to be CBI, to the EPA. Periodic Reports must be generated using the appropriate template on the CEDRI website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, U.S. EPA Mailroom (E143–01), Attention: Ethylene Production Sector Lead, 109 T.W. Alexander Drive, Research Triangle Park, NC 27711. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(iii) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. To assert a claim of EPA system outage, the owner or operator must meet the requirements outlined in paragraphs (a)(10)(iii)(A) through (G) of this section.

(A) The owner or operator must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA's CEDRI or CDX systems.

(B) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(C) The outage may be planned or unplanned.

(D) The owner or operator must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(E) The owner or operator must provide to the Administrator a written description identifying:

(*1*) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

(*2*) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(*3*) Measures taken or to be taken to minimize the delay in reporting; and

(*4*) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(F) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(G) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(iv) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with the reporting requirement. To assert a claim of force majeure, the owner or operator must meet the requirements outlined in paragraphs (a)(10)(iv)(A) through (E) of this section.

(A) You may submit a claim if a *force majeure* event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this paragraph, a *force majeure* event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.,* hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.,* large scale power outage).

(B) The owner or operator must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(C) The owner or operator must provide to the Administrator:

(*1*) A written description of the force majeure event;

(*2*) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;

(*3*) Measures taken or to be taken to minimize the delay in reporting; and

(*4*) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(D) The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(E) In any circumstance, the reporting must occur as soon as possible after the force majeure event occurs.

* * * * *

(d) * * *

(1) *Contents.* The owner or operator shall submit a Notification of Compliance Status for each affected source subject to this subpart containing the information specified in paragraphs (d)(1)(i) and (ii) of this section. For pressure relief devices subject to the requirements of § 63.1107(e)(3), the owner or operator of an acrylic and modacrylic fiber production affected source or polycarbonate production affected source shall also submit the information listed in paragraph (d)(1)(iii) of this section in a supplement to the Notification of Compliance Status within 150 days after the first applicable compliance date for pressure relief device monitoring. For flares subject to the requirements of § 63.1103(e)(4), the owner or operator of an ethylene production affected source shall also submit the information listed in paragraph (d)(1)(iv) of this section in a supplement to the Notification of Compliance Status within 150 days after the first applicable compliance date for flare monitoring. For pressure relief devices subject to the pressure release management work practice standards in § 63.1107(h)(3), the owner or operator of an ethylene production affected source shall also submit the information listed in paragraph (d)(1)(v) of this section in a supplement to the Notification of Compliance Status within 150 days after the first applicable compliance date for pressure relief device monitoring.

(i) Except as specified in paragraphs (d)(1)(iv) and (v) of this section, the Notification of Compliance Status shall include the information specified in this subpart and the subparts referenced by this subpart. Alternatively, this information can be submitted as part of a title V permit application or amendment.

* * * * *

(iv) For each flare subject to the requirements in § 63.1103(e)(4), in lieu of the information required in § 63.987(b) of subpart SS, the Notification of Compliance Status shall include flare design (*e.g.*, steam-assisted, air-assisted, non-assisted, or pressure-assisted multi-point); all visible emission readings, heat content determinations, flow rate measurements, and exit velocity determinations made during the initial visible emissions demonstration required by § 63.670(h) of subpart CC, as applicable; and all periods during the compliance determination when the pilot flame or flare flame is absent.

(v) For pressure relief devices subject to the requirements of § 63.1107(h), the Notification of Compliance Status shall include the information specified in paragraphs (d)(1)(v)(A) and (B) of this section.

(A) A description of the monitoring system to be implemented, including the relief devices and process parameters to be monitored, and a description of the alarms or other methods by which operators will be notified of a pressure release.

(B) A description of the prevention measures to be implemented for each affected pressure relief device.

* * * * *

(e) * * *

(1) *Contents.* Except as specified in paragraphs (e)(4) through (8) of this section, Periodic Reports shall include all information specified in this subpart and subparts referenced by this subpart.

* * * * *

(4) *Ethylene production flare reports.* For each flare subject to the requirements in § 63.1103(e)(4), the Periodic Report shall include the items specified in paragraphs (e)(4)(i) through (vi) of this section in lieu of the information required in § 63.999(c)(3) of subpart SS.

(i) Records as specified in § 63.1109(e)(1) for each 15-minute block during which there was at least one minute when regulated material is routed to a flare and no pilot flame or flare flame is present. Include the start and stop time and date of each 15-minute block.

(ii) Visible emission records as specified in § 63.1109(e)(2)(iv) for each period of 2 consecutive hours during which visible emissions exceeded a total of 5 minutes.

(iii) The periods specified in § 63.1109(e)(7). Indicate the date and start time for the period, and the net heating value operating parameter(s) determined following the methods in § 63.670(k) through (n) of subpart CC as applicable.

(iv) For flaring events meeting the criteria in § 63.670(o)(3) of subpart CC and § 63.1103(e)(4)(iv):

(A) The start and stop time and date of the flaring event.

(B) The length of time that emissions were visible from the flare during the event.

(C) Results of the root cause and corrective actions analysis completed during the reporting period, including the corrective actions implemented during the reporting period and, if applicable, the implementation schedule for planned corrective actions to be implemented subsequent to the reporting period.

(v) For pressure-assisted multi-point flares, the periods of time when the pressure monitor(s) on the main flare header show the burners operating outside the range of the manufacturer's specifications.

(vi) For pressure-assisted multi-point flares, the periods of time when the staging valve position indicator monitoring system indicates a stage should not be in operation and is or when a stage should be in operation and is not.

(5) *Ethylene production maintenance vent reports.* For maintenance vents subject to the requirements § 63.1103(e)(5), Periodic Reports must include the information specified in paragraphs (e)(5)(i) through (iv) of this section for any release exceeding the applicable limits in § 63.1103(e)(5)(i). For the purposes of this reporting requirement, owners or operators complying with § 63.1103(e)(5)(i)(D) must report each venting event conducted under those provisions and include an explanation for each event as to why utilization of this alternative was required.

(i) Identification of the maintenance vent and the equipment served by the maintenance vent.

(ii) The date and time the maintenance vent was opened to the atmosphere.

(iii) The LEL, vessel pressure, or mass of VOC in the equipment, as applicable, at the start of atmospheric venting. If the 5 psig vessel pressure option in § 63.1103(e)(5)(i)(B) was used and active purging was initiated while the LEL was 10 percent or greater, also include the LEL of the vapors at the time active purging was initiated.

(iv) An estimate of the mass of organic HAP released during the entire atmospheric venting event.

(6) *Bypass line reports.* For bypass lines subject to the requirements in § 63.1103(e)(6), Periodic Reports must include the date, time, duration, estimate of the volume of gas, the concentration of organic HAP in the gas and the resulting mass emissions of organic HAP that bypass a control device. For periods when the flow indicator is not operating, report the date, time, and duration.

(7) *Decoking operation reports.* For decoking operations of an ethylene cracking furnace subject to the requirements in § 63.1103(e)(7) and (8), Periodic Reports must include the information specified in paragraphs (e)(7)(i) through (iii) of this section.

(i) For each control measure selected to minimize coke combustion emissions as specified in § 63.1103(e)(7)(ii) through (v), report instances where the control measures were not followed.

(ii) Report instances where an isolation valve inspection was not conducted according to the procedures specified in § 63.1103(e)(8).

(iii) For instances where repair was delayed beyond 1 calendar day as specified in § 63.1103(e)(7)(i), report the information specified in § 63.1109(h)(1).

(8) *Ethylene production pressure relief devices reports.* For pressure relief devices subject to the requirements of § 63.1107(h), Periodic Reports must include the information specified in paragraphs (e)(8)(i) through (iii) of this section.

(i) For pressure relief devices in organic HAP gas or vapor service, pursuant to § 63.1107(h)(1), report any instrument reading of 500 ppm or greater.

(ii) For pressure relief devices in organic HAP gas or vapor service subject to § 63.1107(h)(2), report confirmation that any monitoring required to be done during the reporting period to show compliance was conducted.

(iii) For pressure relief devices in organic HAP service subject to § 63.1107(h)(3), report each pressure release to the atmosphere, including duration of the pressure release and estimate of the mass quantity of each organic HAP released; the results of any root cause analysis and corrective action analysis completed during the reporting period, including the corrective actions implemented during the reporting period; and, if applicable, the implementation schedule for planned corrective actions to be implemented subsequent to the reporting period.

* * * * *

(g) * * *

(1) *Submission to the Environmental Protection Agency.* All reports and notifications required under this subpart shall be sent to the appropriate EPA Regional Office and to the delegated State authority, except that request for permission to use an alternative means of emission limitation as provided for in § 63.1113 shall be submitted to the Director of the EPA Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, MD–10, Research Triangle Park, North Carolina, 27711. The EPA Regional Office may waive the requirement to submit a copy of any reports or notifications at its discretion, except that electronic reporting to CEDRI cannot be waived, and as such, compliance with the provisions of this paragraph does not relieve owners or operators of affected facilities of the requirement to submit electronic reports required in this subpart to the EPA.

(2) *Submission of copies.* If any State requires a notice that contains all the information required in a report or notification listed in this subpart, an owner or operator may send the appropriate EPA Regional Office a copy of the report or notification sent to the State to satisfy the requirements of this subpart for that report or notification, except that performance test reports and performance evaluation reports required under paragraph (a)(10) of this section must be submitted to CEDRI in the format specified in that paragraph.

* * * * *

■ 26. Section 63.1111 is amended by revising paragraphs (a) introductory text, (b) introductory text, and (c) introductory text to read as follows:

§ 63.1111 Startup, shutdown, and malfunction.

(a) *Startup, shutdown, and malfunction plan.* Before July 6, 2023, the requirements of this paragraph (a) apply to all affected sources except for acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources. On and after July 6, 2023, the requirements of this paragraph (a) apply to all affected sources except for acrylic and modacrylic fiber production affected sources, ethylene production affected sources, and polycarbonate production affected sources.

* * * * *

(b) *Startup, shutdown, and malfunction reporting requirements.* Before July 6, 2023, the requirements of this paragraph (b) apply to all affected sources except for acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources. On and after July 6, 2023, the requirements of this paragraph (b) apply to all affected sources except for acrylic and modacrylic fiber production affected sources, ethylene production affected sources, and polycarbonate production affected sources.

* * * * *

(c) *Malfunction recordkeeping and reporting.* Before July 6, 2023, the requirements of this paragraph (c) apply only to acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources. On and after July 6, 2023, the requirements of this paragraph (c) apply only to acrylic and modacrylic fiber production affected sources, ethylene production affected sources, and polycarbonate production affected sources.

* * * * *

■ 27. Section 63.1112 is amended by revising paragraph (d)(2) to read as follows:

§ 63.1112 Extension of compliance, and performance test, monitoring, recordkeeping and reporting waivers and alternatives.

* * * * *

(d) * * *

(2) Recordkeeping or reporting requirements may be waived upon written application to the Administrator if, in the Administrator's judgment, the affected source is achieving the relevant standard(s), or the source is operating under an extension of compliance, or the owner or operator has requested an extension of compliance and the Administrator is still considering that request. Electronic reporting to the EPA cannot be waived, and as such, compliance with the provisions of this paragraph does not relieve owners or operators of affected facilities of the requirement to submit electronic reports required in this subpart to the EPA.

* * * * *

■ 28. Section 63.1113 is amended by revising paragraph (a)(2) to read as follows:

§ 63.1113 Procedures for approval of alternative means of emission limitation.

(a) * * *

(2) Any such notice shall be published only after public notice and an opportunity for public comment.

* * * * *

■ 29. Section 63.1114 is amended by revising paragraph (b) introductory text and adding paragraph (b)(6) to read as follows:

§ 63.1114 Implementation and enforcement.

* * * * *

(b) In delegating implementation and enforcement authority of this subpart to a state, local, or tribal agency under subpart E to this part, the authorities contained in paragraphs (b)(1) through (6) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

* * * * *

(6) Approval of an alternative to any electronic reporting to EPA required by this subpart.

[FR Doc. 2020–05898 Filed 7–2–20; 8:45 am]

BILLING CODE 6560–50–P