6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2018-0746; FRL-10001-98-OAR]

RIN 2060-AT85

National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing Residual Risk and Technology Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is proposing amendments to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Miscellaneous Organic Chemical Manufacturing source category. The EPA is proposing decisions concerning the residual risk and technology review (RTR), including proposing amendments pursuant to the technology review for equipment leaks and heat exchange systems, and also proposing amendments pursuant to the risk review to specifically address ethylene oxide emissions from storage tanks, process vents, and equipment leaks. The EPA is also proposing amendments 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. Lastly, the EPA is proposing to add monitoring and operational requirements for flares that control ethylene oxide emissions and flares used to control emissions from processes that produce olefins and polyolefins; and add provisions for electronic reporting of performance test results and reports, performance evaluation reports, and

compliance reports. We estimate that, if finalized, these proposed amendments (not including the potential excess emission reductions from flares) would reduce hazardous air pollutants (HAP) emissions from this source category by 116 tons per year (tpy) and would reduce ethylene oxide emissions from this source category by approximately 10 tpy.

DATES: *Comments*. Comments must be received on or before **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Public hearing. The EPA is planning to hold at least one public hearing in response to this proposed action. Information about the hearing, including location, date, and time, along with instructions on how to register to speak at the hearing, will be published in a second **Federal Register** document and posted at *https://www.epa.gov/stationary-sources-air-pollution/miscellaneous-organic-chemical-manufacturing-national-emission*. See **SUPPLEMENTARY INFORMATION** for information on registering and attending a public hearing.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OAR-2018-0746, by any of the following methods:

- Federal eRulemaking Portal: *https://www.regulations.gov/* (our preferred method). Follow the online instructions for submitting comments.

- Email: *a-and-r-docket@epa.gov*. Include Docket ID No. EPA-HQ-OAR-2018-0746 in the subject line of the message.

- Fax*:* (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2018-0746.

- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2018-0746, Mail Code 28221T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

- Hand/Courier Delivery*:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004. The Docket Center's hours of operation are 8:30 a.m. – 4:30 p.m., Monday – Friday (except federal holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to *https://www.regulations.gov/*, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Ms. Tegan Lavoie, Sector Policies and Programs Division (E-143-01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5110; fax number: (919) 541-0516; and email address: *lavoie.tegan@epa.gov*. For specific information regarding the risk modeling methodology, contact Mr. Matthew Woody, 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) 541-1535; fax number: (919) 541-0840; and email address: *woody.matthew@epa.gov*. For questions about monitoring and testing requirements, contact Ms. Gerri Garwood, Sector Policies and Programs Division

(D243-05), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-2406; fax number: (919) 541-4991; and email address: *garwood.gerri@epa.gov*. For information about the applicability of the NESHAP to a particular entity, contact Mr. John Cox, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, WJC South Building (Mail Code 2227A), 1200 Pennsylvania Avenue, NW, Washington DC 20460; telephone number: (202) 564-1395; and email address: *cox.john@epa.gov*.

SUPPLEMENTARY INFORMATION:

Public hearing. The EPA is planning to hold at least one public hearing in response to this proposed action. Information about the hearing, including location, date, and time, along with instructions on how to register to speak at the hearing will be published in a second **Federal Register** document.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2018-0746. All documents in the docket are listed in Regulations.gov. 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. Publicly available docket materials are available either electronically in Regulations.gov or in hard copy at the EPA Docket Center, Room 3334, WJC West Building, 1301 Constitution Avenue, NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2018-0746. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *https://www.regulations.gov/*, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *https://www.regulations.gov/* or email. This type of information should be submitted by mail as discussed below.

The EPA may publish any comment received to its public docket. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the Web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets*.

The *https://www.regulations.gov/* website allows you to submit your comment anonymously, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through *https://www.regulations.gov/*, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any digital storage media you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at *https://www.epa.gov/dockets*.

Submitting CBI. Do not submit information containing CBI to the EPA through *https://www.regulations.gov/* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, mark the outside of the digital storage media as CBI and then identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in *Instructions* above. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2018-0746.

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:

ACA	American Coatings Association
ACC	American Chemistry Council

AEGL	acute exposure guideline level
AERMOD	air dispersion model used by the HEM-3 model
AFPM	American Fuel & Petrochemical Manufacturers
AMEL	alternative means of emission limitation
APCD	air pollution control device
ATSDR	Agency for Toxic Substances and Disease Registry
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology
Btu	British thermal unit
Btu/scf	British thermal unit per standard cubic foot
CAA	Clean Air Act
CalEPA	California EPA
CBI	Confidential Business Information
CDX	Central Data Exchange
CEDRI	Compliance and Emissions Data Reporting Interface
CEMS	continuous emission monitoring system(s)
CFR	Code of Federal Regulations
ECHO	Enforcement and Compliance History Online
EIS	emissions inventory system
EPA	Environmental Protection Agency
ERPG	Emergency Response Planning Guideline
ERT	Electronic Reporting Tool
FID	flame ionization detector
FTIR	fourier transfer infrared spectrometry
GACT	generally available control technologies
HAP	hazardous air pollutant(s)
HCl	hydrochloric acid
HEM-3	Human Exposure Model
HF	hydrogen fluoride
HI	hazard index
HQ	hazard quotient
HRVOC	highly reactive volatile organic compounds
ICR	Information Collection Request
IRIS	Integrated Risk Information System
km	kilometer
LAER	lowest achievable emission rate
LDAR	leak detection and repair
LEL	lower explosive limit

MACT	maximum achievable control technology
MCPU	miscellaneous organic chemical manufacturing process unit
mg/m^3	milligrams per cubic meter
MIR	maximum individual risk
MON	Miscellaneous Organic Chemical Manufacturing NESHAP
MPGF	multi-point ground flare(s)
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NEI	National Emission Inventory
NESHAP	national emission standards for hazardous air pollutants
NHVcz	net heating value in the combustion zone gas
NHVdil	net heating value dilution parameter
NHVvg	net heating value of flare vent gas
NRDC	Natural Resources Defense Council
NSPS	new source performance standards
NTTAA	National Technology Transfer and Advancement Act
OAQPS	Office of Air Quality Planning and Standards
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
PB-HAP	hazardous air pollutants known to be persistent and bio-accumulative in the environment
PDF	portable document format
PDH	propane dehydrogenation
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
ppmv	parts per million by volume
PRA	Paperwork Reduction Act
PRD	pressure relief device(s)
psig	pounds per square inch gauge
RACT	reasonably available control technology
REL	reference exposure level
RFA	Regulatory Flexibility Act
RfC	reference concentration
RTR	residual risk and technology review
SAB	Science Advisory Board
SCC	source classification code
SSM	startup, shutdown, and malfunction

TCEQ	Texas Commission on Environmental Quality
TOSHI	target organ-specific hazard index
tpy	tons per year
TRIM.FaTE	Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure Model
UF	uncertainty factor
$\mu g/m^3$	micrograms per cubic meter
UMRA	Unfunded Mandates Reform Act
URE	unit risk estimate
USGS	U.S. Geological Survey
VCS	voluntary consensus standards
VOC	volatile organic compound(s)

Organization of this document. The information in this preamble is organized as follows below. In particular, section IV of this preamble describes the majority of the Agency's rationale for the proposed actions in this preamble. Section IV.A of this preamble specifies proposed monitoring and operational requirements for a subset of flares in the Miscellaneous Organic Chemical Manufacturing source category to ensure that the level of control from the original maximum achievable control technology (MACT) standards is achieved by these air pollution control devices (APCD). To ensure that Clean Air Act (CAA) section 112 standards continuously apply (*Sierra Club v. EPA*, *551 F.3d 1019* (D.C. Cir. 2008)), section IV.A of this preamble also proposes work practice standards for periods of SSM for when flares are used as an APCD, proposes work practice standards for periods of SSM for certain vent streams (*i.e.*, pressure relief device (PRD) releases and maintenance vents), and proposes clarifications for vent control bypasses for certain vent streams (*i.e.*, closed vent systems containing bypass lines, and flares connected to fuel gas systems).

Section IV.B of this preamble summarizes the results of the risk assessment while section IV.C summarizes our proposed decisions regarding the results of the risk assessment, and proposes revisions for storage tanks, process vents, and equipment leaks to reduce emissions of ethylene oxide. Section IV.D of this preamble summarizes the results of our technology review, and proposes revisions for heat exchange systems and equipment leaks. Section IV.E of this preamble summarizes other changes we are proposing, including general regulatory language changes related to the removal of SSM exemptions, electronic reporting, and other minor clarifications identified as part our review of the NESHAP and as part of the other proposed revisions in this proposal. Lastly, section IV.F of this preamble summarizes our rationale for the compliance dates we are proposing.

I. General Information

A. Does this action apply to me?

Table 1 of this preamble lists the NESHAP and associated regulated industrial source category that is the subject of this proposal. Table 1 is not intended to be exhaustive, but rather provides a guide for readers regarding the entities that this proposed action is likely to affect. The proposed standards, once promulgated, will be directly applicable to the affected sources. Federal, state, local, and tribal government entities would not be affected by this proposed action. On July 16, 1992 (57 FR 31576), pursuant to specific listing requirements in CAA section 112(c), the Agency published an initial list of 174 categories of major and area sources that would be subject to MACT emission standards. Following this listing, in a November 7, 1996, document (61 FR 57602), the Agency combined 21 of the 174 source categories originally defined in the *Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990* (see 57 FR 31576, July 16, 1992) and *Documentation for Developing the Initial Source Category List, Final Report* (see EPA-450/3-91-030, July 1992), and other organic chemical processes which were not included in the original 174 source category list, into one source category called the “Miscellaneous Organic Chemical Processes” source category. In a

November 18, 1999, document (64 FR 63035), the Agency divided the "Miscellaneous Organic Chemical Processes" source category into two new source categories called the "Miscellaneous Organic Chemical Manufacturing" source category and the "Miscellaneous Coating Manufacturing" source category. The Miscellaneous Organic Chemical Manufacturing source category includes any facility engaged in benzyltrimethylammonium chloride production, carbonyl sulfide production, chelating agents production, chlorinated paraffins production, ethylidene norbornene production, explosives production, hydrazine production, photographic chemicals production, phthalate plasticizers production, rubber chemicals production, symmetrical tetrachloropyridine production, oxybisphenoxarsine/1,3-diisocyanate production, alkyd resins production, polyester resins production, polyvinyl alcohol production, polyvinyl acetate emulsions production, polyvinyl butyral production, polymerized vinylidene chloride production, polymethyl methacrylate production, maleic anhydride copolymers production, or any other organic chemical processes not covered by another MACT standard. Many of these organic chemical processes involve similar process equipment, similar emission points and control equipment, and are in many cases co-located with other source categories. For more information about the Miscellaneous Organic Chemical Manufacturing source category, see section II.B of this preamble.

Table 1. NESHAP and Industrial Source Categories Affected By This Proposed Action

Source Category	**NESHAP**	**NAICS Code[1]**
Miscellaneous Organic Chemical Manufacturing	Miscellaneous Organic Chemical Manufacturing	3251, 3252, 3253, 3254, 3255, 3256, and 3259, with several exceptions

[1] North American Industry Classification System.

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 action is available on the Internet. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at *https://www.epa.gov/stationary-sources-air-pollution/miscellaneous-organic-chemical-manufacturing-national-emission*. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents at this same website. Information on the overall RTR program is available at *https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html*.

A redline version of the regulatory language that incorporates the proposed changes is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2018-0746).

II. Background

A. What is the statutory authority for this action?

The statutory authority for this action is provided by sections 112 and 301 of the CAA, as amended (42 U.S.C. 7401 *et seq*.). Section 112 of the CAA establishes a two-stage regulatory process to develop standards for emissions of HAP from stationary sources. Generally, the first stage involves establishing technology-based standards and the second stage involves evaluating those standards that are based on MACT to determine whether additional standards are needed to address any remaining risk associated with HAP emissions. This second stage is commonly referred to as the “residual risk review.” In addition to the residual risk review, the CAA also requires the EPA to review standards set under CAA section 112 every 8 years to determine if there are “developments in practices, processes, or control technologies” that may be appropriate to incorporate into the standards. This review is commonly referred to as the “technology review.” When the two reviews are combined into a single rulemaking, it is commonly referred to as the “risk and technology review.” The discussion that follows identifies the most relevant statutory sections and briefly explains the contours of the methodology used to implement these statutory requirements. A more comprehensive discussion appears in the document titled *CAA Section 112 Risk and Technology Reviews: Statutory Authority and Methodology*, in the docket for this rulemaking.

In the first stage of the CAA section 112 standard setting process, the EPA promulgates technology-based standards under CAA section 112(d) for categories of sources identified as emitting one or more of the HAP listed in CAA section 112(b). Sources of HAP emissions are either major sources or area sources, and CAA section 112 establishes different requirements for major source standards and area source standards. "Major sources" are those that emit or have the potential to emit 10 tpy or more of a single HAP or 25 tpy or more of any combination of HAP. All other sources are "area sources." For major sources, CAA section 112(d)(2) provides that the technology-based NESHAP must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). These standards are commonly referred to as MACT standards. CAA section 112(d)(3) also establishes a minimum control level for MACT standards, known as the MACT "floor." The EPA must also consider control options that are more stringent than the floor. Standards more stringent than the floor are commonly referred to as beyond-the-floor standards. In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards where it is not feasible to prescribe or enforce a numerical emission standard. For area sources, CAA section 112(d)(5) gives the EPA discretion to set standards based on generally available control technologies or management practices (GACT standards) in lieu of MACT standards.

The second stage in standard-setting focuses on identifying and addressing any remaining (*i.e.*, "residual") risk according to CAA section 112(f). For source categories subject to MACT standards, section 112(f)(2) of the CAA requires the EPA to determine whether promulgation of additional standards is needed to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect. Section 112(d)(5) of the CAA provides that this residual risk review is not required for categories of area sources subject to GACT standards. Section 112(f)(2)(B) of the CAA further expressly preserves the EPA's use of the two-step approach for developing standards to address any residual risk and the Agency's interpretation of "ample margin of safety" developed in the *National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants* (Benzene NESHAP) (54 FR 38044, September 14, 1989). The EPA notified Congress in the Risk Report that the Agency intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA–453/R–99–001, p. ES–11). The EPA subsequently adopted this approach in its residual risk determinations and the United States Court of Appeals for the District of Columbia Circuit (the Court) upheld the EPA's interpretation that CAA section 112(f)(2) incorporates the approach established in the Benzene NESHAP. See *NRDC v. EPA*, 529 F.3d 1077, 1083 (D.C. Cir. 2008).

The approach incorporated into the CAA and used by the EPA to evaluate residual risk and to develop standards under CAA section 112(f)(2) is a two-step approach. In the first step, the EPA determines whether risks are acceptable. This determination "considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR)[1] of approximately 1-in-10 thousand." 54 FR 38045, September 14, 1989. If risks are unacceptable, the EPA must determine the emissions standards necessary to reduce risk to an acceptable level without considering costs. In the second step of the approach, the EPA considers whether the emissions standards provide an ample margin of safety to protect public health "in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision." *Id.* The EPA must promulgate emission standards necessary to provide an ample margin of safety to protect public health or determine that the standards being reviewed provide an ample margin of safety without any revisions. After conducting the ample margin of safety analysis, we consider whether a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

CAA section 112(d)(6) separately requires the EPA to review standards promulgated under CAA section 112 and revise them "as necessary (taking into account developments in practices, processes, and control technologies)" no less often than every 8 years. In conducting this review, which we call the "technology review," the EPA is not required to recalculate the MACT floor. *Natural Resources Defense Council (NRDC) v. EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc. v. EPA*, 716 F.3d 667 (D.C. Cir. 2013). The EPA may consider cost in deciding whether to revise the standards pursuant to CAA section 112(d)(6).

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[1] Although defined as "maximum individual risk," MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated risk if an individual were exposed to the maximum level of a pollutant for a lifetime.

B. What is this source category and how does the current NESHAP regulate its HAP emissions?

The current NESHAP, herein called the Miscellaneous Organic Chemical Manufacturing NESHAP (MON) for the Miscellaneous Organic Chemical Manufacturing source category was promulgated on November 10, 2003 (68 FR 63852), and codified at 40 CFR part 63, subpart FFFF. As promulgated in 2003, and further amended on July 1, 2005 (70 FR 38562), and July 14, 2006 (71 FR 40316), the MON regulates HAP emissions from miscellaneous organic chemical manufacturing process units (MCPUs) located at major sources. An MCPU includes a miscellaneous organic chemical manufacturing process, as defined in 40 CFR 63.2550(i), and must meet the following criteria: (1) it manufactures any material or family of materials described in 40 CFR 63.2435(b)(1); it processes, uses, or generates any of the organic HAP described in 40 CFR 63.2435(b)(2); and, except for certain process vents that are part of a chemical manufacturing process unit, as identified in 40 CFR 63.100(j)(4), the MCPU is not an affected source or part of an affected source under another subpart of 40 CFR part 63. An MCPU also includes any assigned storage tanks and transfer racks; equipment in open systems that is used to convey or store water having the same concentration and flow characteristics as wastewater; and components such as pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems that are used to manufacture any material or family of materials described in 40 CFR 63.2435(b)(1). Sources of HAP emissions regulated by the MON include the following: process vents, storage tanks, transfer racks, equipment leaks, wastewater streams, and heat exchange systems.

As of November 6, 2018, the EPA identified 201 miscellaneous organic chemical manufacturing facilities in operation and subject to the MON standards, herein referred to as

"MON facilities", using methods described in section II.C of this preamble. A complete list of known MON facilities is available in Appendix 1 of the document titled *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking.

C. *What data collection activities were conducted to support this action?*

The EPA used several sources to develop the list of existing MON facilities. All facilities in the 2014 National Emissions Inventory (NEI) and the 2014 Toxics Release Inventory with a primary facility NAICS code beginning with 325, representing the chemical manufacturing sector, were queried to create a comprehensive base facility list. The list was also supplemented using the Office of Enforcement and Compliance Assurance's (OECA) Enforcement and Compliance History Online (ECHO) tool (*https://echo.epa.gov*) and chemical sector facility lists provided internally from the EPA's records. This starting chemical manufacturing sector facility list included over 5,000 unique facilities, 201 of which we found to be subject to the MON.

To determine which facilities on the comprehensive chemical manufacturing sector facility list were subject to the MON, title V air permits were obtained from each state's online database. In cases where the online database was incomplete, the Region and/or state was contacted for help in obtaining the air permits, and internet searches were performed to determine the status of the facility (*e.g.*, open, permanently closed, sold, etc.). The list was also shared with the American Chemistry Council (ACC) and the American Coatings Association (ACA) for voluntary input on rule applicability. This review and analysis produced the final facility list of 201 MON facilities. For MON facilities that reported emissions of ethylene oxide, we not only reviewed the air permit, but we also contacted facilities to verify process and operating information.[2]

In November 2018, the EPA issued a request, pursuant to CAA section 114, to gather information about process equipment, control technologies, and emissions, and requested performance testing for certain pollutants for one MCPU source emitting ethylene oxide. The facility completed the survey and submitted responses (and follow-up responses) to the EPA between January 2019 and February 2019. The results of the performance testing were received on September 3, 2019, and, therefore, were not included in the risk analysis. The Agency has made the results publicly available in the docket for this rulemaking to provide the public with an opportunity to review the data before promulgation of the rule. Before final promulgation of this rulemaking, the EPA intends to use the collected information to assist the Agency in filling data gaps, establishing the baseline emissions and control levels for purposes of the regulatory reviews, identifying the most effective control measures, and estimating the environmental impacts associated with the regulatory options considered and reflected in this proposed action. The information not claimed as CBI by respondents and received in time to be included in this proposal is available in the memorandum titled *Data Received from Information Collection Request for the Miscellaneous Organic Chemical Manufacturing Source Category*, which is available in the docket for this rulemaking.

D. What other relevant background information and data are available?

We are relying on technical reports and memoranda that the EPA developed for flares used as air pollution control devices in the Petroleum Refinery Sector RTR and New Source

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[2] As discussed in section IV.C.2 of this preamble, we specifically address ethylene oxide emissions from storage tanks, process vents, and equipment leaks.

Performance Standards (NSPS) (80 FR 75178, December 1, 2015). These technical reports and memoranda can be found in the Petroleum Refinery Sector RTR and NSPS rulemaking docket, Docket ID No. EPA-HQ-OAR-2010-0682. The Petroleum Refinery Sector docket contains several flare-related technical reports and memoranda documenting numerous analyses the EPA conducted to develop the final suite of operational and monitoring requirements for refinery flares. For completeness of the rulemaking record for this action and ease of reference in finding these items in the publicly available refinery sector rulemaking docket, we are including a list of the most relevant technical support documents in Table 1 of the memorandum titled *Control Option Impacts for Flares Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, which is available in the docket for this rulemaking.

In addition, the EPA is incorporating into the docket for this rulemaking materials associated with a number of site-specific alternative means of emission limitation (AMEL) requests for facilities electing to use multi-point ground flares (MPGF) as an APCD. These site-specific AMEL requests for MPGF have been approved by the EPA because the MPGF can achieve at least equivalent reductions in emissions to the underlying flare operational standards in various NESHAP and/or NSPS. The EPA receives these AMEL requests because MPGFs are designed to operate above the current maximum permitted velocity requirements for flares in the General Provisions at 40 CFR 63.11(b). Given that the EPA has provided notice and sought comment on certain specific AMEL requests, the underlying AMEL requests submitted by industry, MPGF test data, technical memorandums, **Federal Register** documents[3] and other supporting and related material that formed the basis of the AMEL requests and approved

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[3] 80 FR 8023, February 13, 2015; 80 FR 52426, August 31, 2015; 81 FR 23480, April 21, 2016; 82 FR 16392, April 4, 2017; 82 FR 27822, June 19, 2017; and 83 FR 18034, April 25, 2018.

alternative operating conditions have been placed in a publicly available docket at Docket ID No. EPA-HQ-OAR-2014-0738. We consider all items in Docket ID No. EPA-HQ-OAR-2014-0738 part of our rulemaking record as well, given that this docket is specific to MPGF AMEL requests. We are, therefore, referencing the materials in Docket ID No. EPA-HQ-OAR-2014-0738 for this rule.

We are also relying on data gathered to support the RTR for ethylene production processes, as well as memoranda documenting the technology review for those processes. Many of the emission sources for ethylene production facilities are similar to MON facilities, and several of the control options analyzed for the MON were also analyzed for the Ethylene Production RTR. The memoranda and background technical information can be found in the Ethylene Production RTR rulemaking docket, Docket ID No. EPA-HQ-OAR-2017-0357.

Furthermore, the risk assessment presented here relies on the use of the 2016 updated ethylene oxide unit risk estimate (URE) for regulatory purposes. The EPA previously requested comment on the use of this URE in the Hydrochloric Acid Production RTR proposed rule (84 FR 1584, February 4, 2019), the comment period for which closed on April 26, 2019. The Agency received a number of comments on the use of the updated ethylene oxide URE. However, ethylene oxide is not emitted by the Hydrochloric Acid Production source category but is emitted by the Miscellaneous Organic Chemical Manufacturing source category. Therefore, the EPA is incorporating these comments into the docket for this rulemaking from Docket ID No. EPA-HQ-OAR-2018-0417 and, along with comments received on this proposal, will address all comments in the response to comments document of this final rulemaking. Note that all comments received in the Hydrochloric Acid Production RTR proposal were at least partially related to risks from ethylene oxide, and, therefore, we are incorporating all comments from that rulemaking into the docket for this action. (Note, additional discussion on the use of the 2016 updated URE for ethylene oxide for this regulatory action is provided in section IV.C.3 in this preamble.)

Lastly, the EPA is incorporating into the docket for this rulemaking all materials associated with the development of the current MON standards from Docket ID No. A-96-04 and Docket ID No. OAR-2003-0121. Publicly available docket materials are available either electronically at *https://www.regulations.gov/* or in hard copy at the EPA Docket Center, EPA WJC West Building, Room 3334, 1301 Constitution Ave., NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

III. Analytical Procedures and Decision-Making

In this section, we describe the analyses performed to support the proposed decisions for the RTR and other issues addressed in this proposal.

A. How do we consider risk in our decision-making?

As discussed in section II.A of this preamble and in the Benzene NESHAP, in evaluating and developing standards under CAA section 112(f)(2), we apply a two-step approach to determine whether or not risks are acceptable and to determine if the standards provide an ample margin of safety to protect public health. As explained in the Benzene NESHAP, “the first step judgment on acceptability cannot be reduced to any single factor” and, thus, “[t]he Administrator believes that the acceptability of risk under section 112 is best judged on the basis of a broad set of health risk measures and information.” 54 FR 38046, September 14, 1989. Similarly, with regard to the ample margin of safety determination, “the Agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors." *Id.*

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. The EPA conducts a risk assessment that provides estimates of the MIR posed by the HAP emissions from each source in the source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause noncancer health effects, and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause noncancer health effects.[4] The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The scope of the EPA's risk analysis is consistent with the EPA's response to comments on our policy under the Benzene NESHAP where the EPA explained that:

> "[t]he policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of non-cancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach complies with the *Vinyl Chloride* mandate that the Administrator ascertain an acceptable level of risk to the public by employing his expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA's consideration with respect to CAA section 112 regulations, and thereby implicitly permits consideration of any and all measures of health risk which the Administrator, in his judgment, believes are appropriate to determining what will 'protect the public health'."

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[4] The MIR is defined as the cancer risk associated with a lifetime of exposure at the highest concentration of HAP where people are likely to live. The HQ is the ratio of the potential HAP exposure concentration to the noncancer dose-response value; the HI is the sum of HQs for HAP that affect the same target organ or organ system.

See 54 FR 38057, September 14, 1989. Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risk. The Benzene NESHAP explained that "an MIR of approximately one in 10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes an MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors." *Id.* at 38045. In other words, risks that include an MIR above 100-in-1 million may be determined to be acceptable, and risks with an MIR below that level may be determined to be unacceptable, depending on all of the available health information. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: "EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category." *Id.* at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in our determinations of acceptability and ample margin of safety.

The EPA notes that it has not considered certain health information to date in making residual risk determinations. At this time, we do not attempt to quantify the HAP risk that may be associated with emissions from other facilities that do not include the source category under review, mobile source emissions, natural source emissions, persistent environmental pollution, or atmospheric transformation in the vicinity of the sources in the category.

The EPA understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing noncancer risk, where pollutant-specific exposure health reference levels (*e.g.*, reference concentrations (RfCs)) are based on the assumption that thresholds exist for adverse health effects. For example, the EPA recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse noncancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.*, other facilities) to which an individual is exposed may be sufficient to result in an increased risk of adverse noncancer health effects. In May 2010, the Science Advisory Board (SAB) advised the EPA "that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area."[5]

In response to the SAB recommendations, the EPA incorporates cumulative risk analyses into its RTR risk assessments, including those reflected in this proposal. The Agency (1) conducts facility-wide assessments, which include source category emission points, as well as other emission points within the facilities; (2) combines exposures from multiple sources in the same category that could affect the same individuals; and (3) for some persistent and bioaccumulative pollutants, analyzes the ingestion route of exposure. In addition, the RTR risk

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[5] Recommendations of the SAB Risk and Technology Review Methods Panel are provided in their report, which is available at: *https://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf*.

assessments consider aggregate cancer risk from all carcinogens and aggregated noncancer HQs for all noncarcinogens affecting the same target organ or target organ system.

Although we are interested in placing source category and facility-wide HAP risk in the context of total HAP risk from all sources combined in the vicinity of each source, we are concerned about the uncertainties of doing so. Estimates of total HAP risk from emission sources other than those that we have studied in depth during this RTR review would have significantly greater associated uncertainties than the source category or facility-wide estimates. Such aggregate or cumulative assessments would compound those uncertainties, making the assessments too unreliable.

B. How do we perform the technology review?

Our technology review focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. Where we identify such developments, we analyze their technical feasibility, estimated costs, energy implications, and non-air environmental impacts. We also consider the emission reductions associated with applying each development. This analysis informs our decision of whether it is “necessary” to revise the emissions standards. In addition, we consider the appropriateness of applying controls to new sources versus retrofitting existing sources. For this exercise, we consider any of the following to be a “development”:

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards;
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction;

- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards;
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards; and
- Any significant changes in the cost (including cost-effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

In addition to reviewing the practices, processes, and control technologies that were considered at the time we originally developed (or last updated) the NESHAP, we review a variety of data sources in our investigation of potential practices, processes, or controls to consider. See sections II.C and II.D of this preamble for information on the specific data sources that were reviewed as part of the technology review.

C. How do we estimate post-MACT risk posed by the source category?

In this section, we provide a complete description of the types of analyses that we generally perform during the risk assessment process. In some cases, we do not perform a specific analysis because it is not relevant. For example, in the absence of emissions of HAP known to be persistent and bioaccumulative in the environment (PB-HAP), we would not perform a multipathway exposure assessment. Where we do not perform an analysis, we state that we do not and provide the reason. While we present all of our risk assessment methods, we only present risk assessment results for the analyses actually conducted (see section IV.B of this preamble).

The EPA conducts a risk assessment that provides estimates of the MIR for cancer posed by the HAP emissions from each source in the source category, the HI for chronic exposures to HAP with the potential to cause noncancer health effects, and the HQ for acute exposures to HAP with the potential to cause noncancer health effects. The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The eight sections that follow this paragraph describe how we estimated emissions and conducted the risk assessment. The docket for this rulemaking contains the following document which provides more information on the risk assessment inputs and models: *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*. The methods used to assess risk (as described in the eight primary steps below) are consistent with those described by the EPA in the document reviewed by a panel of the EPA's SAB in 2009;[6] and described in the SAB review report issued in 2010. They are also consistent with the key recommendations contained in that report.

1. How did we estimate actual emissions and identify the emissions release characteristics?

The MON facility list was developed as described in section II.C of this preamble and consists of 201 facilities. The emissions modeling input files were developed using the EPA's 2014 NEI. Two modeling input files were developed, one that contains the whole facility emissions and one that contains only emissions from MON processes, or the source category. For the 201 MON facilities, only 197 had reported HAP emissions in the 2014 NEI. Of the four

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[6] U.S. EPA. *Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies – MACT I Petroleum Refining Sources and Portland Cement Manufacturing*, June 2009. EPA-452/R-09-006. *https://www3.epa.gov/airtoxics/rrisk/rtrpg.html*.

facilities without HAP emissions, two had reported no HAP data to the 2014 NEI and two had no Emissions Inventory System (EIS) ID and, therefore, no emissions data to pull from the NEI. Of the 197 facilities with reported HAP emissions, three facilities did not report any HAP emissions that could be identified as attributed to MON processes and, therefore, emissions data for these three facilities could not be modeled. Therefore, due to lack of available data, source category risk modeling was not conducted for seven of the 201 MON facilities, which could potentially result in an underestimation of risk for the source category. The complete MON facility list is available in Appendix 1 of the document titled *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking.

The EPA created the whole facility modeling file using all HAP emissions records from the 2014 NEI for the list of 197 EIS IDs which had available HAP data. The NEI data were also used to develop the other parameters needed to perform the risk modeling analysis, including the emissions release characteristics, such as stack heights, stack diameters, flow rates, temperatures, and emission release point locations.

The EPA then created the source category modeling input file by identifying the specific NEI emissions records in the whole facility modeling input file that are subject to the MON by reviewing the facilities' title V air permits, unit source classification code (SCC), emission unit descriptions, and process descriptions. The EPA also used SCC codes, emission unit descriptions, and process descriptions to identify units that are not subject to the MON (*e.g.*, boilers, engines, etc.) and removed them from the source category modeling file. In general, ambiguous NEI records were assumed to be subject to the MON to be conservatively inclusive, with the intention of verifying the rule applicability later if the risk analysis revealed these unit emissions to be risk drivers for the source category. As mentioned previously, of the 197 facilities with reported HAP emissions at the whole facility level, three facilities did not report any HAP emissions that could be identified as attributed to MON processes and, therefore, emissions data for 194 facilities was included in the source category modeling file. After determining which NEI records were subject to the MON, the record was assigned to an emission process group, identified in Table 2.

Table 2. Emission Process Groups Related to the Miscellaneous Organic Chemical Manufacturing Source Category

Emission Process Group Abbreviation[1]	Emission Process Group Description[1]
PV	Process Vent
ST	Storage Tank
TR	Transfer Operation
HE	Heat Exchange System
EL	Equipment Leak
WS	Wastewater
FL	Flare
IN[2]	Potential MON Process Group[2]
UK[3]	Unknown Process Group[3]
OT[4]	Non-MON Process Group[4]

[1] Sometimes the record includes co-mingled emissions from more than one emission process group due to a shared control device.

[2] These are emission records at the facility from sources that may potentially be subject to the MON, based on their SCC code, emission unit description, or process description, but could not be verified due to lack of available information.

[3] These are emission records at the facility from sources that are subject to the MON but lack specific details in the NEI record to allow identification of an appropriate emission process group.

[4] These are emission records at the facility from sources that are not subject to the MON. Therefore, this emission process group will only appear in the whole facility modeling file, and not in the source category modeling file.

The RTR emissions dataset was refined following an extensive quality assurance check of source locations, emission release point parameters, and annual emission estimates. The EPA reviewed the locations of emission release points at each facility and revised each record as needed to ensure that all release points were located within the fenceline of the facility. If an emission release point was located outside of the facility fenceline or on an obviously incorrect location within the fenceline (*e.g.*, parking lot, lake, etc.) then the emission release point was re-located to either the true location of the equipment, if known, or the approximate center of the facility.

The emission release point parameters for stacks in the modeling input files include stack height, exit gas temperature, stack diameter, exit gas velocity, and exit gas flow rate. If emission release point parameters were outside of typical quality assurance range checks or missing, then the air permit was used to try and determine the permitted value. If this information could not be found within the air permit, then a surrogate value was assigned based on either the NAICS code, the regulatory code, or the SCC. In some cases, missing emission release point parameters were calculated using other parameters within the modeling input file. For example, missing exit gas flow rates were calculated using reported diameter and velocity.

Additionally, the EPA compared the emission release point type (*i.e.*, fugitive, stack) to the emission unit and process descriptions for the modeling file records. In cases where information was conflicting (*i.e.*, equipment leaks being modeled as a vertical stack, or process vent emissions being modeled as a fugitive area), we updated the emission release point type to the appropriate category and supplemented the appropriate emission release parameters using either permitted values, when available, or defaulted values.

In some cases, the EPA coordinated with Regional offices, state agencies, and/or industry on a specific emission record if it was unknown whether the emissions belonged to a MON process and preliminary risk analysis indicated that this pollutant might be a risk driver. This specific inquiry was done to ensure that only MON emissions were included in the source category modeling file. To further improve the quality of the modeling file, in September 2017, the EPA provided member companies of ACC and ACA with the emissions modeling input records. The emissions records were also sent directly to several companies. This allowed companies the opportunity to review and revise emission values, emission release point parameters, and coordinates, as needed. Any changes received between September 2017 and November 2018 were incorporated into the RTR modeling file. Changes received after November 2018 will be considered for incorporation in the final rule. A list of responses received from the Regional offices, state agencies, and chemical companies can be found in Appendix 1 of the document titled *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking. This memorandum provides a description of the information received, the file name of the response received, and details on how the information was used to supplement the modeling file. This memorandum also provides records of all changes made to the source category and whole facility modeling input files throughout the quality assurance and quality control process, and additional details on the data and methods used to develop actual emissions estimates for the risk modeling, including the EPA's quality assurance review.

2. How did we estimate MACT-allowable emissions?

The available emissions data in the RTR emissions dataset include estimates of the mass of HAP emitted during a specified annual time period. These "actual" emission levels are often lower than the emission levels allowed under the requirements of the current MACT standards. The emissions allowed under the MACT standards are referred to as the "MACT-allowable" emissions. We discussed the consideration of both MACT-allowable and actual emissions in the final Coke Oven Batteries RTR (70 FR 19998–19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP RTR (71 FR 34428, June 14, 2006, and 71 FR 76609, December 21, 2006, respectively). In those actions, we noted that assessing the risk at the MACT-allowable level is inherently reasonable since that risk reflects the maximum level facilities could emit and still comply with national emission standards. We also explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP approach. (54 FR 38044, September 14, 1989.)

For this analysis, we have determined that the actual emissions data are reasonable estimates of the MACT-allowable emissions levels for the Miscellaneous Organic Chemical Manufacturing source category. The ability to estimate MACT-allowable emissions from the actual emissions dataset is largely dependent on the format of the standard for a given emissions source as well as the types of controls employed for the source. For further details on the assumptions and methodologies used to estimate MACT-allowable emissions, see Appendix 1 of the document titled *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking.

3. How do we conduct dispersion modeling, determine inhalation exposures, and estimate individual and population inhalation risk?

Both long-term and short-term inhalation exposure concentrations and health risk from the source category addressed in this proposal were estimated using the Human Exposure Model (HEM-3).[7] The HEM-3 performs three primary risk assessment activities: (1) conducting

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[7] For more information about HEM-3, go to *https://www.epa.gov/fera/risk-assessment-and-modeling-human-exposure-model-hem.*

dispersion modeling to estimate the concentrations of HAP in ambient air, (2) estimating long-term and short-term inhalation exposures to individuals residing within 50 kilometers (km) of the modeled sources, and (3) estimating individual and population-level inhalation risk using the exposure estimates and quantitative dose-response information.

a. Dispersion Modeling

The air dispersion model AERMOD, used by the HEM-3 model, is one of the EPA's preferred models for assessing air pollutant concentrations from industrial facilities.[8] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM-3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (2016) of hourly surface and upper air observations from 824 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block[9] internal point locations and populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant-specific dose-response values is used to estimate health risk. These are discussed below.

b. Risk from Chronic Exposure to HAP

In developing the risk assessment for chronic exposures, we use the estimated annual average ambient air concentrations of each HAP emitted by each source in the source category. The HAP air concentrations at each nearby census block centroid located within 50 km of the

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[8] U.S. EPA. Revision to the *Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions* (70 FR 68218, November 9, 2005).

[9] A census block is the smallest geographic area for which census statistics are tabulated.

facility are a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989) and the limitations of Gaussian dispersion models, including AERMOD.

For each facility, we calculate the MIR as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week, 52 weeks per year, 70 years) exposure to the maximum concentration at the centroid of each inhabited census block. We calculate individual cancer risk by multiplying the estimated lifetime exposure to the ambient concentration of each HAP (in micrograms per cubic meter ($\mu g/m^3$)) by its URE. The URE is an upper-bound estimate of an individual's incremental risk of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use UREs from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) UREs, where available. In cases where new, scientifically credible dose-response values have been developed in a manner consistent with EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate. The pollutant-specific dose-response values used to estimate cancer health risk are available at *https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants*.

To estimate individual lifetime cancer risks associated with exposure to HAP emissions from each facility in the source category, we sum the risks for each of the carcinogenic HAP[10] emitted by the modeled facility. We estimate cancer risk at every census block within 50 km of every facility in the source category. The MIR is the highest individual lifetime cancer risk estimated for any of those census blocks. In addition to calculating the MIR, we estimate the distribution of individual cancer risks for the source category by summing the number of individuals within 50 km of the sources whose estimated risk falls within a specified risk range. We also estimate annual cancer incidence by multiplying the estimated lifetime cancer risk at each census block by the number of people residing in that block, summing results for all of the census blocks, and then dividing this result by a 70-year lifetime.

To assess the risk of noncancer health effects from chronic exposure to HAP, we calculate either an HQ or a target organ-specific hazard index (TOSHI). We calculate an HQ when a single noncancer HAP is emitted. Where more than one noncancer HAP is emitted, we sum the HQ for each of the HAP that affects a common target organ or target organ system to obtain a TOSHI. The HQ is the estimated exposure divided by the chronic noncancer dose-

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[10] The EPA's 2005 *Guidelines for Carcinogen Risk Assessment* classifies carcinogens as: "carcinogenic to humans," "likely to be carcinogenic to humans," and "suggestive evidence of carcinogenic potential." These classifications also coincide with the terms "known carcinogen, probable carcinogen, and possible carcinogen," respectively, which are the terms advocated in the EPA's *Guidelines for Carcinogen Risk Assessment*, published in 1986 (51 FR 33992, September 24, 1986). In August 2000, the document, *Supplemental Guidance for Conducting Health Risk Assessment of Chemical Mixtures* (EPA/630/R-00/002), was published as a supplement to the 1986 document. Copies of both documents can be obtained from *https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=20533&CFID=70315376&CFTOKEN=71597944*. Summing the risk of these individual compounds to obtain the cumulative cancer risk is an approach that was recommended by the EPA's SAB in their 2002 peer review of the EPA's National Air Toxics Assessment (NATA) titled *NATA - Evaluating the National-scale Air Toxics Assessment 1996 Data -- an SAB Advisory*, available at *https://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf*.

response value, which is a value selected from one of several sources. The preferred chronic noncancer dose-response value is the EPA RfC, defined as “an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime” (*https://iaspub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=IRIS%20Glossary*). In cases where an RfC from the EPA’s IRIS is not available or where the EPA determines that using a value other than the RfC is appropriate, the chronic noncancer dose-response value can be a value from the following prioritized sources, which define their dose-response values similarly to the EPA: (1) The Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Level (*https://www.atsdr.cdc.gov/mrls/index.asp*); (2) the CalEPA Chronic Reference Exposure Level (REL) (*https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0*); or (3) as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA. The pollutant-specific dose-response values used to estimate chronic noncancer health risks are available at *https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants*.

c. Risk from Acute Exposure to HAP that May Cause Health Effects Other Than Cancer

For each HAP for which appropriate acute inhalation dose-response values are available, the EPA also assesses the potential health risks due to acute exposure. For these assessments, the EPA makes conservative assumptions about emission rates, meteorology, and exposure location.

In this proposed rulemaking, as part of our efforts to continually improve our methodologies to evaluate the risks that HAP emitted from categories of industrial sources pose to human health and the environment,[11] we are revising our treatment of meteorological data to use reasonable worst-case air dispersion conditions in our acute risk screening assessments instead of worst-case air dispersion conditions. This revised treatment of meteorological data and the supporting rationale are described in more detail in *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment.* We will be applying this revision in RTR rulemakings proposed on or after June 3, 2019.

To assess the potential acute risk to the maximally exposed individual, we use the peak hourly emission rate for each emission point,[12] reasonable worst-case air dispersion conditions (*i.e.*, 99th percentile), and the point of highest off-site exposure. Specifically, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions co-occur and that a person is present at the point of maximum exposure.

To characterize the potential health risks associated with estimated acute inhalation exposures to a HAP, we generally use multiple acute dose-response values, including acute

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[11] See, *e.g.*, U.S. EPA. *Screening Methodologies to Support Risk and Technology Reviews (RTR): A Case Study Analysis*, Draft Report, May 2017. *https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html*.

[12] In the absence of hourly emission data, we develop estimates of maximum hourly emission rates by multiplying the average actual annual emissions rates by a factor (either a category-specific factor or a default factor of 10) to account for variability. This is documented in *Residual Risk Assessment for Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment*. Both are available in the docket for this rulemaking.

RELs, acute exposure guideline levels (AEGLs), and emergency response planning guidelines (ERPG) for 1-hour exposure durations, if available, to calculate acute HQs. The acute HQ is calculated by dividing the estimated acute exposure concentration by the acute dose-response value. For each HAP for which acute dose-response values are available, the EPA calculates acute HQs.

An acute REL is defined as "the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration."[13] Acute RELs are based on the most sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological literature. They are designed to protect the most sensitive individuals in the population through the inclusion of margins of safety. Because margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact. AEGLs represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to 8 hours.[14] They are guideline levels for "once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals." *Id.* at 21. The AEGL–1 is specifically defined as "the airborne concentration (expressed as ppm (parts per million) or mg/m^3 (milligrams per cubic meter)) of a substance

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[13] CalEPA issues acute RELs as part of its Air Toxics Hot Spots Program, and the 1-hour and 8-hour values are documented in *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants*, which is available at *https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary*.

[14] National Academy of Sciences, 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals*, page 2. Available at *https://www.epa.gov/sites/production/files/2015-09/documents/sop_final_standing_operating_procedures_2001.pdf*. Note that the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances ended in October 2011, but the AEGL program continues to operate at the EPA and works with the National Academies to publish final AEGLs (*https://www.epa.gov/aegl*).

above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure." The document also notes that "Airborne concentrations below AEGL–1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects." *Id.* AEGL–2 are defined as "the airborne concentration (expressed as parts per million or milligrams per cubic meter) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape." *Id.*

ERPGs are "developed for emergency planning and are intended as health-based guideline concentrations for single exposures to chemicals."[15] *Id.* at 1. The ERPG–1 is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor." *Id.* at 2. Similarly, the ERPG–2 is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action." *Id.* at 1.

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[15] *ERPGS Procedures and Responsibilities*. March 2014. American Industrial Hygiene Association. Available at: *https://www.aiha.org/get-involved/AIHAGuidelineFoundation/EmergencyResponsePlanningGuidelines/Documents/ERPG%20Committee%20Standard%20Operating%20Procedures%20%20-%20March%202014%20Revision%20%28Updated%2010-2-2014%29.pdf.*

An acute REL for 1-hour exposure durations is typically lower than its corresponding AEGL–1 and ERPG–1. Even though their definitions are slightly different, AEGL–1s are often the same as the corresponding ERPG–1s, and AEGL–2s are often equal to ERPG–2s. The maximum HQs from our acute inhalation screening risk assessment typically result when we use the acute REL for a HAP. In cases where the maximum acute HQ exceeds 1, we also report the HQ based on the next highest acute dose-response value (usually the AEGL–1 and/or the ERPG–1).

For the acute inhalation risk assessment of the Miscellaneous Organic Chemical Manufacturing source category, we used process level-specific acute emissions multipliers, ranging from a factor of 2 to 10. In general, hourly emissions estimates were based on peak-to-mean ratios for 37 emission process groups, with emissions from transfer racks and other emission process groups where sufficient information did not exist to adequately assess peak hourly emissions (*e.g.*, flares controlling various unknown emissions sources) having the highest hourly peak emissions at a factor of 10 times the annual average. A further discussion of why these factors were selected can be found in Appendix 1 of the document titled *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking.

In our acute inhalation screening risk assessment, acute impacts are deemed negligible for HAP for which acute HQs are less than or equal to 1, and no further analysis is performed for these HAP. In cases where an acute HQ from the screening step is greater than 1, we assess the site-specific data to ensure that the acute HQ is at an off-site location. For this source category, the data refinements employed consisted of ensuring the locations where the maximum HQ occurred were off facility property and where the public could potentially be exposed. These refinements are discussed more fully in the *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule,* which is available in the docket for this source category.

4. How do we conduct the multipathway exposure and risk screening assessment?

The EPA conducts a tiered screening assessment examining the potential for significant human health risks due to exposures via routes other than inhalation (*i.e.*, ingestion). We first determine whether any sources in the source category emit any HAP known to be persistent and bioaccumulative in the environment, as identified in the EPA's Air Toxics Risk Assessment Library (see Volume 1, Appendix D, at *https://www.epa.gov/fera/risk-assessment-and-modeling-air-toxics-risk-assessment-reference-library*).

For the Miscellaneous Organic Chemical Manufacturing source category, we identified PB-HAP emissions of polycyclic organic matter (POM) (of which polycyclic aromatic hydrocarbons is a subset), lead compounds, mercury compounds, cadmium compounds, and arsenic compounds, so we proceeded to the next step of the evaluation. Except for lead, the human health risk screening assessment for PB-HAP consists of three progressive tiers. In a Tier 1 screening assessment, we determine whether the magnitude of the facility-specific emissions of PB-HAP warrants further evaluation to characterize human health risk through ingestion exposure. To facilitate this step, we evaluate emissions against previously developed screening threshold emission rates for several PB-HAP that are based on a hypothetical upper-end screening exposure scenario developed for use in conjunction with the EPA's Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure (TRIM.FaTE) model. The PB-HAP with screening threshold emission rates are arsenic compounds, cadmium compounds, chlorinated dibenzodioxins and furans, mercury compounds, and POM. Based on the EPA estimates of toxicity and bioaccumulation potential, these pollutants represent a conservative list for inclusion in multipathway risk assessments for RTR rules. (See Volume 1, Appendix D at *https://www.epa.gov/sites/production/files/2013-08/documents/volume_1_reflibrary.pdf*). In this assessment, we compare the facility-specific emission rates of these PB-HAP to the screening threshold emission rates for each PB-HAP to assess the potential for significant human health risks via the ingestion pathway. We call this application of the TRIM.FaTE model the Tier 1 screening assessment. The ratio of a facility's actual emission rate to the Tier 1 screening threshold emission rate is a "screening value" (SV).

We derive the Tier 1 screening threshold emission rates for these PB-HAP (other than lead compounds) to correspond to a maximum excess lifetime cancer risk of 1-in-1 million (*i.e.*, for arsenic compounds, polychlorinated dibenzodioxins and furans and POM) or, for HAP that cause noncancer health effects (*i.e.*, cadmium compounds and mercury compounds), a maximum HQ of 1. If the emission rate of any one PB-HAP or combination of carcinogenic PB-HAP in the Tier 1 screening assessment exceeds the Tier 1 screening threshold emission rate for any facility (*i.e.*, the SV is greater than 1), we conduct a second screening assessment, which we call the Tier 2 screening assessment. The Tier 2 screening assessment separates the Tier 1 combined fisher and farmer exposure scenario into fisher, farmer, and gardener scenarios that retain upper-bound ingestion rates.

In the Tier 2 screening assessment, the location of each facility that exceeds a Tier 1 screening threshold emission rate is used to refine the assumptions associated with the Tier 1 fisher and farmer exposure scenarios at that facility. A key assumption in the Tier 1 screening assessment is that a lake and/or farm is located near the facility. As part of the Tier 2 screening assessment, we use a U.S. Geological Survey (USGS) database to identify actual waterbodies within 50 km of each facility and assume the fisher only consumes fish from lakes within that 50 km zone. We also examine the differences between local meteorology near the facility and the meteorology used in the Tier 1 screening assessment. We then adjust the previously-developed Tier 1 screening threshold emission rates for each PB-HAP for each facility based on an understanding of how exposure concentrations estimated for the screening scenario change with the use of local meteorology and USGS lakes database.

In the Tier 2 farmer scenario, we maintain an assumption that the farm is located within 0.5 km of the facility and that the farmer consumes meat, eggs, dairy, vegetables, and fruit produced near the facility. We may further refine the Tier 2 screening analysis by assessing a gardener scenario to characterize a range of exposures, with the gardener scenario being more plausible in RTR evaluations. Under the gardener scenario, we assume the gardener consumes home-produced eggs, vegetables, and fruit products at the same ingestion rate as the farmer. The Tier 2 screen continues to rely on the high-end food intake assumptions that were applied in Tier 1 for local fish (adult female angler at 99th percentile fish consumption[16]) and locally grown or raised foods (90th percentile consumption of locally grown or raised foods for the farmer and gardener scenarios[17]). If PB-HAP emission rates do not result in a Tier 2 SV greater than 1, we consider those PB-HAP emissions to pose risks below a level of concern. If the PB-HAP emission rates for a facility exceed the Tier 2 screening threshold emission rates, we may conduct a Tier 3 screening assessment.

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[16] Burger, J. 2002. Daily consumption of wild fish and game: Exposures of high end recreationists. *International Journal of Environmental Health Research* 12:343–354.

[17] U.S. EPA. *Exposure Factors Handbook 2011 Edition (Final)*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R–09/052F, 2011.

There are several analyses that can be included in a Tier 3 screening assessment, depending upon the extent of refinement warranted, including validating that the lakes are fishable, locating residential/garden locations for urban and/or rural settings, considering plume-rise to estimate emissions lost above the mixing layer, and considering hourly effects of meteorology and plume rise on chemical fate and transport (a time-series analysis). If necessary, the EPA may further refine the screening assessment through a site-specific assessment.

In evaluating the potential multipathway risk from emissions of lead compounds, rather than developing a screening threshold emission rate, we compare maximum estimated chronic inhalation exposure concentrations to the level of the current National Ambient Air Quality Standard (NAAQS) for lead.[18] Values below the level of the primary (health-based) lead NAAQS are considered to have a low potential for multipathway risk.

For further information on the multipathway assessment approach, see the *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this action.

5. How do we assess risks considering emissions control options?

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[18] In doing so, the EPA notes that the legal standard for a primary NAAQS – that a standard is requisite to protect public health and provide an adequate margin of safety (CAA section 109(b)) – differs from the CAA section 112(f) standard (requiring, among other things, that the standard provide an “ample margin of safety to protect public health”). However, the primary lead NAAQS is a reasonable measure of determining risk acceptability (*i.e.*, the first step of the Benzene NESHAP analysis) since it is designed to protect the most susceptible group in the human population – children, including children living near major lead emitting sources. 73 FR 67002/3; 73 FR 67000/3; 73 FR 67005/1. In addition, applying the level of the primary lead NAAQS at the risk acceptability step is conservative, since that primary lead NAAQS reflects an adequate margin of safety.

In addition to assessing baseline inhalation risks and screening for potential multipathway risks, we also estimate risks considering the potential emission reductions that would be achieved by the control options under consideration. In these cases, the expected emission reductions are applied to the specific HAP and emission points in the RTR emissions dataset to develop corresponding estimates of risk and incremental risk reductions.

6. How do we conduct the environmental risk screening assessment?

a. Adverse Environmental Effect, Environmental HAP, and Ecological Benchmarks

The EPA conducts a screening assessment to examine the potential for an adverse environmental effect as required under section 112(f)(2)(A) of the CAA. Section 112(a)(7) of the CAA defines "adverse environmental effect" as "any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas."

The EPA focuses on eight HAP, which are referred to as "environmental HAP," in its screening assessment: six PB-HAP and two acid gases. The PB-HAP included in the screening assessment are arsenic compounds, cadmium compounds, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. The acid gases included in the screening assessment are hydrochloric acid (HCl) and hydrogen fluoride (HF).

HAP that persist and bioaccumulate are of particular environmental concern because they accumulate in the soil, sediment, and water. The acid gases, HCl and HF, are included due to their well-documented potential to cause direct damage to terrestrial plants. In the environmental risk screening assessment, we evaluate the following four exposure media: terrestrial soils, surface water bodies (includes water-column and benthic sediments), fish consumed by wildlife, and air. Within these four exposure media, we evaluate nine ecological assessment endpoints, which are defined by the ecological entity and its attributes. For PB-HAP (other than lead), both community-level and population-level endpoints are included. For acid gases, the ecological assessment evaluated is terrestrial plant communities.

An ecological benchmark represents a concentration of HAP that has been linked to a particular environmental effect level. For each environmental HAP, we identified the available ecological benchmarks for each assessment endpoint. We identified, where possible, ecological benchmarks at the following effect levels: probable effect levels, lowest-observed-adverse-effect level, and no-observed-adverse-effect level. In cases where multiple effect levels were available for a particular PB-HAP and assessment endpoint, we use all of the available effect levels to help us to determine whether ecological risks exist and, if so, whether the risks could be considered significant and widespread.

For further information on how the environmental risk screening assessment was conducted, including a discussion of the risk metrics used, how the environmental HAP were identified, and how the ecological benchmarks were selected, see Appendix 9 of the *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule,* which is available in the docket for this action.

b. Environmental Risk Screening Methodology

For the environmental risk screening assessment, the EPA first determined whether any facilities in the Miscellaneous Organic Chemical Manufacturing source category emitted any of the environmental HAP. For the Miscellaneous Organic Chemical Manufacturing source category, we identified emissions of POM, lead compounds, mercury compounds, cadmium compounds, arsenic compounds, HCl, and HF. Because one or more of the environmental HAP evaluated are emitted by at least one facility in the source category, we proceeded to the second step of the evaluation.

c. PB-HAP Methodology

The environmental screening assessment includes six PB-HAP, arsenic compounds, cadmium compounds, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. With the exception of lead, the environmental risk screening assessment for PB-HAP consists of three tiers. The first tier of the environmental risk screening assessment uses the same health-protective conceptual model that is used for the Tier 1 human health screening assessment. TRIM.FaTE model simulations were used to back-calculate Tier 1 screening threshold emission rates. The screening threshold emission rates represent the emission rate in tons of pollutant per year that results in media concentrations at the facility that equal the relevant ecological benchmark. To assess emissions from each facility in the category, the reported emission rate for each PB-HAP was compared to the Tier 1 screening threshold emission rate for that PB-HAP for each assessment endpoint and effect level. If emissions from a facility do not exceed the Tier 1 screening threshold emission rate, the facility “passes” the screening assessment, and, therefore, is not evaluated further under the screening approach. If emissions from a facility exceed the Tier 1 screening threshold emission rate, we evaluate the facility further in Tier 2.

In Tier 2 of the environmental screening assessment, the screening threshold emission rates are adjusted to account for local meteorology and the actual location of lakes in the vicinity of facilities that did not pass the Tier 1 screening assessment. For soils, we evaluate the average soil concentration for all soil parcels within a 7.5-km radius for each facility and PB-HAP. For the water, sediment, and fish tissue concentrations, the highest value for each facility for each pollutant is used. If emission concentrations from a facility do not exceed the Tier 2 screening threshold emission rate, the facility "passes" the screening assessment and typically is not evaluated further. If emissions from a facility exceed the Tier 2 screening threshold emission rate, we evaluate the facility further in Tier 3.

As in the multipathway human health risk assessment, in Tier 3 of the environmental screening assessment, we examine the suitability of the lakes around the facilities to support life and remove those that are not suitable (*e.g.*, lakes that have been filled in or are industrial ponds), adjust emissions for plume-rise, and conduct hour-by-hour time-series assessments. If these Tier 3 adjustments to the screening threshold emission rates still indicate the potential for an adverse environmental effect (*i.e.*, facility emission rate exceeds the screening threshold emission rate), we may elect to conduct a more refined assessment using more site-specific information. If, after additional refinement, the facility emission rate still exceeds the screening threshold emission rate, the facility may have the potential to cause an adverse environmental effect.

To evaluate the potential for an adverse environmental effect from lead, we compared the average modeled air concentrations (from HEM-3) of lead around each facility in the source category to the level of the secondary NAAQS for lead. The secondary lead NAAQS is a reasonable means of evaluating environmental risk because it is set to provide substantial protection against adverse welfare effects which can include "effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being."

d. Acid Gas Environmental Risk Methodology

The environmental screening assessment for acid gases evaluates the potential phytotoxicity and reduced productivity of plants due to chronic exposure to HF and HCl. The environmental risk screening methodology for acid gases is a single-tier screening assessment that compares modeled ambient air concentrations (from AERMOD) to the ecological benchmarks for each acid gas. To identify a potential adverse environmental effect (as defined in section 112(a)(7) of the CAA) from emissions of HF and HCl, we evaluate the following metrics: the size of the modeled area around each facility that exceeds the ecological benchmark for each acid gas, in acres and km^2; the percentage of the modeled area around each facility that exceeds the ecological benchmark for each acid gas; and the area-weighted average SV around each facility (calculated by dividing the area-weighted average concentration over the 50-km modeling domain by the ecological benchmark for each acid gas). For further information on the environmental screening assessment approach, see Appendix 9 of the *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this action.

7. How do we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire “facility,” where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emission sources at the facility for which we have data. For this source category, we conducted the facility-wide assessment using a dataset compiled from the 2014 NEI. The source category records of that NEI dataset were flagged within the dataset, as described in section II.C of this preamble: What data collection activities were conducted to support this action? Quality assurance and quality control was performed on the whole facility dataset, which included the flagged source category records. The facility-wide file was then used to analyze risks due to the inhalation of HAP that are emitted "facility-wide" for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled source category risks were compared to the facility-wide risks to determine the portion of the facility-wide risks that could be attributed to the source category addressed in this proposal. We also specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule,* available through the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

8. How do we consider uncertainties in risk assessment?

Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health and environmentally protective. A brief discussion of the uncertainties in the RTR emissions dataset, dispersion modeling, inhalation exposure estimates, and dose-response relationships follows below. Also included are those uncertainties specific to our acute screening assessments, multipathway screening assessments, and our environmental risk screening assessments. A more thorough discussion of these uncertainties is included in the *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk* *and Technology Review Proposed Rule,* which is available in the docket for this action. If a multipathway site-specific assessment was performed for this source category, a full discussion of the uncertainties associated with that assessment can be found in Appendix 11 of that document, *Site-Specific Human Health Multipathway Residual Risk Assessment Report*.

a. Uncertainties in the RTR Emissions Dataset

Although the development of the RTR emissions dataset involved quality assurance/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are accurate, errors in emission estimates, and other factors. The emission estimates considered in this analysis generally are annual totals for certain years, and they do not reflect short-term fluctuations during the course of a year or variations from year to year. The estimates of peak hourly emission rates for the acute effects screening assessment were based on an emission adjustment factor applied to the average annual hourly emission rates, which are intended to account for emission fluctuations due to normal facility operations.

b. Uncertainties in Dispersion Modeling

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA’s recommended regulatory dispersion model, AERMOD. In using a model to estimate ambient pollutant concentrations, the user chooses certain options to apply. For RTR assessments, we select some model options that have the potential to overestimate ambient air concentrations (*e.g.*, not including plume depletion or pollutant transformation). We select other model options that have the potential to underestimate ambient impacts (*e.g.*, not including building downwash). Other options that we select have the potential to either under- or overestimate ambient levels (*e.g.*, meteorology and receptor locations). On balance, considering the directional nature of the uncertainties commonly present in ambient concentrations estimated by dispersion models, the approach we apply in the RTR assessments should yield unbiased estimates of ambient HAP concentrations. We also note that the selection of meteorology dataset location could have an impact on the risk estimates. As we continue to update and expand our library of meteorological station data used in our risk assessments, we expect to reduce this variability.

c. Uncertainties in Inhalation Exposure Assessment

Although every effort is made to identify all of the relevant facilities and emission points, as well as to develop accurate estimates of the annual emission rates for all relevant HAP, the uncertainties in our emission inventory likely dominate the uncertainties in the exposure assessment. Some uncertainties in our exposure assessment include human mobility, using the centroid of each census block, assuming lifetime exposure, and assuming only outdoor exposures. For most of these factors, there is neither an under nor overestimate when looking at the maximum individual risk or the incidence, but the shape of the distribution of risks may be affected. With respect to outdoor exposures, actual exposures may not be as high if people spend time indoors, especially for very reactive pollutants or larger particles. For all factors, we reduce uncertainty when possible. For example, with respect to census-block centroids, we analyze large blocks using aerial imagery and adjust locations of the block centroids to better represent the population in the blocks. We also add additional receptor locations where the population of a block is not well represented by a single location.

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and noncancer effects from both chronic and acute exposures. Some uncertainties are generally expressed quantitatively, and others are generally expressed in qualitative terms. We note, as a preface to this discussion, a point on dose-response uncertainty that is stated in the EPA's *2005 Guidelines for Carcinogen Risk Assessment*; namely, that "the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective" (the EPA's *2005 Guidelines for Carcinogen Risk Assessment*, page 1-7). This is the approach followed here as summarized in the next paragraphs.

Cancer UREs used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk.[19] That is, they represent a "plausible upper limit to the true value of a quantity" (although this is usually not a true statistical confidence limit). In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.[20] Chronic noncancer RfC and reference dose (RfD) values represent chronic exposure levels that are intended to be health-protective levels. To derive dose-response values that are intended to be "without appreciable risk," the methodology

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[19] IRIS glossary (*https://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=IRIS%20Glossary*).

[20] An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible, and which is based on maximum likelihood estimates.

relies upon an uncertainty factor (UF) approach,[21] which considers uncertainty, variability, and gaps in the available data. The UFs are applied to derive dose-response values that are intended to protect against appreciable risk of deleterious effects.

Many of the UFs used to account for variability and uncertainty in the development of acute dose-response values are quite similar to those developed for chronic durations. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (*e.g.*, 4 hours) to derive an acute dose-response value at another exposure duration (*e.g.*, 1 hour). Not all acute dose-response values are developed for the same purpose, and care must be taken when interpreting the results of an acute assessment of human health effects relative to the dose-response value or values being exceeded. Where relevant to the estimated exposures, the lack of acute dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

Uncertainty also exists in the selection of ecological benchmarks for the environmental risk screening assessment. We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. We searched for benchmarks for three effect levels (*i.e.*, no-effects level, threshold-effect level, and probable effect level), but not all combinations of ecological assessment/environmental HAP had benchmarks for all three effect levels. Where multiple effect levels were available for a particular HAP and assessment endpoint, we used all of the available effect levels to help us determine whether risk exists and whether the risk could be considered significant and widespread.

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[21] See *A Review of the Reference Dose and Reference Concentration Processes*, U.S. EPA, December 2002, and *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry*, U.S. EPA, 1994.

Although we make every effort to identify appropriate human health effect dose-response values for all pollutants emitted by the sources in this risk assessment, some HAP emitted by this source category are lacking dose-response assessments. Accordingly, these pollutants cannot be included in the quantitative risk assessment, which could result in quantitative estimates understating HAP risk. To help to alleviate this potential underestimate, where we conclude similarity with a HAP for which a dose-response value is available, we use that value as a surrogate for the assessment of the HAP for which no value is available. To the extent use of surrogates indicates appreciable risk, we may identify a need to increase priority for an IRIS assessment for that substance. We additionally note that, generally speaking, HAP of greatest concern due to environmental exposures and hazard are those for which dose-response assessments have been performed, reducing the likelihood of understating risk. Further, HAP not included in the quantitative assessment are assessed qualitatively and considered in the risk characterization that informs the risk management decisions, including consideration of HAP reductions achieved by various control options.

For a group of compounds that are unspeciated (*e.g.*, glycol ethers), we conservatively use the most protective dose-response value of an individual compound in that group to estimate risk. Similarly, for an individual compound in a group (*e.g.*, ethylene glycol diethyl ether) that does not have a specified dose-response value, we also apply the most protective dose-response value from the other compounds in the group to estimate risk.

e. Uncertainties in Acute Inhalation Screening Assessments

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that the EPA conducts as part of the risk review under section 112 of the CAA. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly emission rates, meteorology, and the presence of a person. In the acute screening assessment that we conduct under the RTR program, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions (*i.e.*, 99th percentile) co-occur. These two events are unlikely to occur at the same time, making these assumptions conservative. We then include the additional assumption that a person is located at this point at the same time. Together, these assumptions represent a reasonable worst-case exposure scenario. In most cases, it is unlikely that a person would be located at the point of maximum exposure during the time when peak emissions and reasonable worst-case air dispersion conditions occur simultaneously.

f. Uncertainties in the Multipathway and Environmental Risk Screening Assessments

For each source category, we generally rely on site-specific levels of PB-HAP or environmental HAP emissions to determine whether a refined assessment of the impacts from multipathway exposures is necessary or whether it is necessary to perform an environmental screening assessment. This determination is based on the results of a three-tiered screening assessment that relies on the outputs from models – TRIM.FaTE and AERMOD – that estimate environmental pollutant concentrations and human exposures for five PB-HAP (dioxins, POM, mercury, cadmium, and arsenic) and two acid gases (HF and HCl). For lead, we use AERMOD to determine ambient air concentrations, which are then compared to the secondary NAAQS standard for lead. Two important types of uncertainty associated with the use of these models in RTR risk assessments and inherent to any assessment that relies on environmental modeling are model uncertainty and input uncertainty.[22]

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[22] In the context of this discussion, the term “uncertainty” as it pertains to exposure and risk encompasses both ***variability*** in the range of expected inputs and screening results due to existing

Model uncertainty concerns whether the model adequately represents the actual processes (*e.g.*, movement and accumulation) that might occur in the environment. For example, does the model adequately describe the movement of a pollutant through the soil? This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA SAB reviews and other reviews, we are confident that the models used in the screening assessments are appropriate and state-of-the-art for the multipathway and environmental screening risk assessments conducted in support of RTR.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier 1 of the multipathway and environmental screening assessments, we configured the models to avoid underestimating exposure and risk. This was accomplished by selecting upper-end values from nationally representative datasets for the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, lake location and size, meteorology, surface water, soil characteristics, and structure of the aquatic food web. We also assume an ingestion exposure scenario and values for human exposure factors that represent reasonable maximum exposures.

In Tier 2 of the multipathway and environmental screening assessments, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values, and we identify the actual location of lakes near the facility rather than the default lake location that we apply in Tier 1. By refining the screening approach in Tier 2 to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of

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spatial, temporal, and other factors, as well as ***uncertainty*** in being able to accurately estimate the true result.

the screening assessment. In Tier 3 of the screening assessments, we refine the model inputs again to account for hour-by-hour plume rise and the height of the mixing layer. We can also use those hour-by-hour meteorological data in a TRIM.FaTE run using the screening configuration corresponding to the lake location. These refinements produce a more accurate estimate of chemical concentrations in the media of interest, thereby reducing the uncertainty with those estimates. The assumptions and the associated uncertainties regarding the selected ingestion exposure scenario are the same for all three tiers.

For the environmental screening assessment for acid gases, we employ a single-tiered approach. We use the modeled air concentrations and compare those with ecological benchmarks.

For all tiers of the multipathway and environmental screening assessments, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. This approach reduces the likelihood of not identifying high risks for adverse impacts.

Despite the uncertainties, when individual pollutants or facilities do not exceed screening threshold emission rates (*i.e.,* screen out), we are confident that the potential for adverse multipathway impacts on human health is very low. On the other hand, when individual pollutants or facilities do exceed screening threshold emission rates, it does not mean that impacts are significant, only that we cannot rule out that possibility and that a refined assessment for the site might be necessary to obtain a more accurate risk characterization for the source category.

The EPA evaluates the following HAP in the multipathway and/or environmental risk screening assessments, where applicable: arsenic, cadmium, dioxins/furans, lead, mercury (both inorganic and methyl mercury), POM, HCl, and HF. These HAP represent pollutants that can cause adverse impacts either through direct exposure to HAP in the air or through exposure to HAP that are deposited from the air onto soils and surface waters and then through the environment into the food web. These HAP represent those HAP for which we can conduct a meaningful multipathway or environmental screening risk assessment. For other HAP not included in our screening assessments, the model has not been parameterized such that it can be used for that purpose. In some cases, depending on the HAP, we may not have appropriate multipathway models that allow us to predict the concentration of that pollutant. The EPA acknowledges that other HAP beyond these that we are evaluating may have the potential to cause adverse effects and, therefore, the EPA may evaluate other relevant HAP in the future, as modeling science and resources allow.

IV. Analytical Results and Proposed Decisions

A. What actions are we taking in addition to those identified in the risk and technology review?

In addition to the proposed actions on the risk review and technology review discussed further in this section, we are proposing the following: (1) adding monitoring and operational requirements for flares that control ethylene oxide emissions and flares used to control emissions from processes that produce olefins and polyolefins, with the option for an owner or operator of a flare outside of this subset to choose to opt in to the proposed requirements in lieu of complying with the current flare standards, and (2) consistent with *Sierra Club v. EPA, 551 F.3d 1019* (D.C. Cir. 2008), ensuring that CAA section 112 standards apply continuously by proposing work practice standards for periods of SSM for certain vent streams (*i.e.*, PRD releases and maintenance vents), and proposing clarifications for vent control bypasses for certain vent streams (*i.e.*, closed vent systems containing bypass lines, and flares connected to fuel gas systems). The results and proposed decisions based on the analyses performed pursuant to CAA section 112(d)(2) and (3) are presented below.

1. Flares

The EPA is proposing under CAA section 112(d)(2) and (3) to amend the operating and monitoring requirements for a subset of flares used as APCDs in the Miscellaneous Organic Chemical Manufacturing source category because we have determined that the current requirements for flares in this subset are not adequate to ensure the level of destruction efficiency needed to conform with the MACT standards in the MON. This subset includes flares that either (1) control ethylene oxide emissions, (2) control emissions from processes that produce olefins, or (3) control emissions from processes that produce polyolefins. Flares falling into one of these categories are referred to as the flare "subset" in this preamble, and for clarification, it is our intention that, as part of this proposal, flares controlling propane dehydrogenation (PDH) processes be included in this flare subset since the PDH process produces olefins such as propylene. The EPA is also proposing that, for flares outside of this subset, an owner or operator may choose to comply with the updated standards in lieu of complying with the current flare standards. Therefore, all proposed flare standards in section IV.A.1 of this preamble are intended to apply to only the specified flare subset and to flares at MON facilities where the owner or operator has chosen to opt in to the proposed standards. Flares outside of this subset, or at MON facilities where the owner or operator has chosen not to opt in to the proposed standards, will be subject to the current provisions for flares in the MON standard.

The specified flare subset was selected on the basis that the current requirements for flares may be inadequate to ensure the level of destruction efficiency needed to conform with the MACT standards in the MON. Flares are commonly used within the Miscellaneous Organic Chemical Manufacturing source category. The requirements applicable to flares, which are used to control emissions from various emission sources in the Miscellaneous Organic Chemical Manufacturing source category (*e.g.*, process vents, storage tanks, transfer racks, equipment leaks, wastewater streams), are set forth in the General Provisions to 40 CFR part 63 and are cross-referenced in 40 CFR part 63, subpart G (for wastewater), and 40 CFR part 63, subpart SS (for process vents, storage tanks, transfer racks, and equipment leaks). In general, flares used as APCDs are expected to achieve 98-percent HAP destruction efficiencies when designed and operated according to the requirements in the General Provisions. Studies on flare performance,[23] however, indicate that these General Provision requirements are inadequate to ensure proper performance of flares at refineries and other petrochemical facilities (including chemical manufacturing facilities), particularly when either assist steam or assist air is used. In addition, over the last decade, flare minimization efforts at these facilities have led to an increasing number of flares operating at well below their design capacity, and while these efforts have resulted in reduced flaring of gases, situations of over assisting with either steam or air have become exacerbated, leading to the degradation of flare combustion efficiency. Several flares located at MON facilities control vent streams containing olefins. These MON facilities operate directly downstream from refineries and other petrochemical plants (*e.g.*, ethylene production plants) and, consequently, likely burn similar types of waste gas constituents to a refinery or

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[23] For a list of studies, refer to the technical report titled *Parameters for Properly Designed and Operated Flares*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0191.

petrochemical plant (*e.g.*, olefins and hydrogen). Given that flares at petrochemical plants (including facilities that produce olefins) were also included in the flare dataset that formed the underlying basis of the new standards for refinery flares, we believe that it is appropriate to apply the finalized suite of operational and monitoring requirements for refinery flares to those flares in the Miscellaneous Organic Chemical Manufacturing source category that control emissions from processes that produce olefins and/or polyolefins. Additionally, we included flares controlling ethylene oxide emissions within this subset to ensure that these flares will achieve high combustion efficiency, which is necessary as small quantities of ethylene oxide emissions can present significant cancer risks to surrounding communities. Additional discussion on this proposed control option is presented in section IV.C.2 of this preamble, which proposes that process vents and storage tanks in ethylene oxide service either use a control device achieving 99.9-percent emissions reductions, control emissions using a non-flare control device that reduces ethylene oxide to less than 1 part per million by volume (ppmv) or (for process vents only) less than 5 pounds per year for all combined process vents, or control emissions using a flare that meets the proposed flare standards presented in this section. Therefore, these proposed amendments will ensure that continuous compliance with the CAA section 112(d)(2) and (d)(3) standards is achieved for MON facilities that use flares that control ethylene oxide emissions and/or flares used to control emissions from MCPUs that produce olefins and/or polyolefins. We solicit comments and data on the application of these standards to the proposed flare subset, the option for an owner or operator to choose to opt in to the proposed flare standards for flares outside of this subset in lieu of complying with the current flare standards, and the need to apply these standards more broadly.

The General Provisions of 40 CFR 63.11(b) specify that flares be: (1) steam-assisted, air-assisted, or non-assisted; (2) operated at all times when emissions may be vented to them; (3) designed for and operated with no visible emissions (except for periods not to exceed a total of 5 minutes during any 2 consecutive hours); and (4) operated with the presence of a pilot flame at all times. These General Provisions also specify both the minimum heat content of gas combusted in the flare and maximum exit velocity at the flare tip. The General Provisions specify monitoring for the presence of the pilot flame and the operation of a flare with no visible emissions. For other operating limits, 40 CFR part 63, subpart SS, includes an initial flare compliance assessment to demonstrate compliance but specifies no monitoring requirements to ensure continuous compliance. We are proposing to revise the General Provisions table to 40 CFR part 63, subpart FFFF (Table 12), entries for 40 CFR 63.8(a)(4) and 40 CFR 63.11 such that these provisions do not apply to flares in the specified subset, because we are proposing to replace these provisions with new standards we are proposing for flares in the specified subset. We are also proposing at 40 CFR 63.2535(m) to clarify that owners or operators of flares that are not considered to be in the specified subset but are subject to the provisions of 40 CFR 60.18 or 63.11 may elect to comply with the new proposed flare standards in lieu of the provisions of 40 CFR 60.18 or 63.11.

In 2012, the EPA compiled information and test data collected on flares and summarized its preliminary findings on operating parameters that affect flare combustion efficiency in a technical report titled *Parameters for Properly Designed and Operated Flares*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0191.[24] The EPA submitted this report, along with a charge

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[24] See section II.D of this preamble, which addresses the incorporation by reference of certain docket files such as this one into the docket for this rulemaking.

statement and a set of charge questions, to an external peer review panel.[25] The panel, consisting of individuals representing a variety of backgrounds and perspectives (*i.e.*, industry, academia, environmental experts, and industrial flare consultants), concurred with the EPA's assessment that the following three primary factors affect flare performance: (1) the flow of the vent gas to the flare; (2) the amount of assist media (*e.g.*, steam or air) added to the flare; and (3) the combustibility of the vent gas/assist media mixture in the combustion zone (*i.e.*, the net heating value, lower flammability, and/or combustibles concentration) at the flare tip. However, in response to peer review comments, the EPA performed a validation and usability analysis on all available test data as well as a failure analysis on potential parameters discussed in the technical report as indicators of flare performance. The peer review comments are in the memorandum titled *Peer Review of Parameters for Properly Designed and Operated Flares*, available in Docket ID Item No. EPA-HQ-OAR-2010-0682-0193, which has been incorporated into the docket for this rulemaking. These analyses resulted in a change to the population of test data that the EPA used and helped form the basis for the flare operating limits promulgated in the 2015 Petroleum Refinery Sector MACT final rule at 40 CFR part 63, subpart CC (80 FR 75178).[26] We are also relying on the same analyses and proposing the same operating limits for flares in the specified subset used as APCDs in the Miscellaneous Organic Chemical Manufacturing source

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[25] These documents can also be found at *https://www.epa.gov/stationary-sources-air-pollution/review-peer-review-parameters-properly-designed-and-operated-flares*.

[26] See technical memorandum titled *Flare Performance Data: Summary of Peer Review Comments and Additional Data Analysis for Steam-Assisted Flares*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0200 for a more detailed discussion of the data quality and analysis; the technical memorandum titled *Petroleum Refinery Sector Rule: Operating Limits for Flares*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0206 for a more detailed discussion of the failure analysis and the technical memorandum titled *Flare Control Option Impacts for Final Refinery Sector Rule*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0748 for additional analyses on flare performance standards based on public comments received on the proposed Petroleum Refinery Sector rule.

category. The Agency believes, given the results from the various data analyses conducted for the Petroleum Refinery Sector MACT rule, that the operating limits promulgated for flares used in the petroleum refinery sector are also appropriate and reasonable for flares in the specified subset, and will ensure that flares in the specified subset meet the HAP removal efficiency at all times. Therefore, we are proposing at 40 CFR 63.2450(e)(5) to directly apply the Petroleum Refinery Sector MACT rule flare definitions and requirements in 40 CFR part 63, subpart CC, to flares in the specified subset in the Miscellaneous Organic Chemical Manufacturing source category with certain clarifications and exemptions discussed in this section of the preamble, 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 specified subset in the Miscellaneous Organic Chemical Manufacturing 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.

The remainder of this section of the preamble includes a discussion of requirements that we are proposing for flares in the specified subset used as APCDs in the Miscellaneous Organic Chemical Manufacturing source category, along with impacts and costs associated with these proposed revisions. Specifically, this action proposes that flares in the specified subset 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. In addition, this action proposes to consolidate measures related to flare tip velocity and proposes new operational and monitoring requirements related to the combustion zone gas. Further, in keeping with the elimination of the SSM exemption as discussed in section IV.E.1 of this preamble, this action proposes 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). Currently, the MACT standards in the MON cross-reference the General Provisions at 40 CFR 63.11(b) for the operational requirements for flares used as APCD (through reference of 40 CFR part 63, subparts G and SS). This proposal eliminates cross-references to the General Provisions and instead specifies all new operational and monitoring requirements that are intended to apply to flares in the specified subset used as APCDs in the MON standards.

a. Pilot Flames

The MON references the flare requirements in 40 CFR 63.11(b) (through reference of 40 CFR part 63, subpart G, 40 CFR part 63, subpart SS, and Table 12 to 40 CFR part 63, subpart FFFF), which specify that a flare used as an APCD should operate with a pilot flame present at all times. Pilot flames are proven to improve flare flame stability, and even short durations of an extinguished pilot could cause a significant reduction in flare destruction efficiency. In this proposal, we are proposing to remove the cross-reference to the General Provisions for flares in the specified subset only and instead cross-reference 40 CFR part 63, subpart CC, to include in the MON the existing provision that flares operate with a pilot flame at all times and be continuously monitored for a pilot flame using a thermocouple or any other equivalent device. We are also proposing to add a continuous compliance measure for flares in the specified subset that would consider each 15-minute block when there is at least 1 minute where no pilot flame is present when regulated material is routed to the flare as a deviation from the standard. Refer to 40 CFR 63.2450(e)(5) and 40 CFR 63.670(b) and (g) for these proposed requirements. See section IV.A.1.e of this preamble for our rationale for proposing to use a 15-minute block averaging period for determining continuous compliance. We solicit comment on the proposed revisions for flare pilot flames.

b. Visible Emissions

The MON references 40 CFR 63.11(b) (through reference of 40 CFR part 63, subpart G, 40 CFR part 63, subpart SS, and Table 12 to 40 CFR part 63, subpart FFFF), which specifies that a flare used as an APCD should operate with visible emissions for no more than 5 minutes in a 2-hour period. Owners or operators of these flares are required to conduct an initial performance demonstration for visible emissions using EPA Method 22 of Appendix A–7 to 40 CFR part 60 (“Method 22”). We are proposing to remove the cross-reference to the General Provisions for flares in the specified subset and instead cross-reference 40 CFR part 63, subpart CC, to include the limitation on visible emissions. We are also proposing to clarify that the initial 2-hour visible emissions demonstration should be conducted the first time regulated materials are routed to the flare.

With regard to continuous compliance with the visible emissions limitation, we are proposing daily visible emissions monitoring for flares in the specified subset for whenever regulated material is routed to the flare and also visible emissions monitoring for whenever visible emissions are observed from the flare. On days that the flare receives regulated material, we are proposing that owners or operators of flares in the specified subset monitor visible emissions at a minimum of once per day while the flare is receiving regulated material using an observation period of 5 minutes and Method 22. Additionally, whenever regulated material is routed to a flare in the specified subset and there are visual emissions from the flare, we are proposing that another 5-minute visible emissions observation period be performed using Method 22, even if the minimum required daily visible emission monitoring has already been performed. For example, if an employee observes visible emissions, the owner or operator of the flare would perform a 5-minute Method 22 observation to check for compliance upon initial observation or notification of such event. In addition, in lieu of daily visible emissions observations performed using Method 22, we are proposing that owners and operators be allowed to use video surveillance cameras. We believe that video surveillance cameras would be at least as effective as the proposed daily 5-minute visible emissions observations using Method 22.

We are also proposing to extend the observation period for a flare in the specified subset to 2 hours whenever visible emissions are observed for greater than 1 continuous minute during any of the 5-minute observation periods. Refer to 40 CFR 63.2450(e)(5) and 40 CFR 63.670(c) and (h) for these proposed requirements. We acknowledge that operating a flare near the incipient smoke point (the point at which black smoke begins to form within the flame) results in good combustion at the flare tip; however, smoking flares can contribute significantly to emissions of particulate matter that is 2.5 micrometers in diameter or smaller. Thus, while increasing the allowable period for visible emissions may be useful from an operational perspective, we do not believe the allowable period for visible emissions should be increased to more than 5 minutes in any 2-hour period. We solicit comment on the proposed allowable period for visible emissions from flares.

As discussed later in this section, we are proposing additional operational and monitoring requirements for flares in the specified subset that we expect will result in owners or operators of MCPUs installing equipment that can be used to fine-tune and control the amount of assist steam or air introduced at the flare tip such that combustion efficiency of the flare will be maximized. These monitoring and control systems will assist these flare owners or operators to operate near the incipient smoke point without exceeding the visible emissions limit. While combustion efficiency may be highest at the incipient smoke point, it is not significantly higher than the combustion efficiency achieved by the proposed operating limits discussed in section IV.A.1.d of this preamble. As seen in the performance curves for flares, there is very limited improvement in flare performance beyond the performance achieved at the proposed operating limits (see technical memorandum titled *Petroleum Refinery Sector Rule: Operating Limits for Flares*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0206, which has been incorporated into the docket for this rulemaking). We solicit comments and data on appropriate periods of visible emissions that would encourage operation at the incipient smoke point.

In addition, we are proposing that the owner or operator establish the smokeless capacity of each flare in the specified subset based on design specification of the flare, and that the visible emissions limitation only apply when the flare vent gas flow rate is below its smokeless capacity. We are proposing a work practice standard for the limited times (*i.e.*, during emergency releases) when the flow to a flare in the specified subset exceeds the smokeless capacity of the flare, based on comments the EPA received on the proposed Petroleum Refinery Sector rule. Refer to 40 CFR 63.2450(e)(5) and 40 CFR 63.670(o) for these proposed provisions. In the Petroleum Refinery Sector final rule, the EPA explained that numerous comments on the proposal suggested that flares are not designed to meet the visible emissions requirements when operated beyond their smokeless capacity (80 FR 75178). According to commenters, flares are typically designed to operate in a smokeless manner at 20 to 30 percent of full hydraulic load. Thus, they claimed, flares have two different design capacities: a “smokeless capacity” to handle normal operations and typical process variations and a “hydraulic load capacity” to handle very large volumes of gases discharged to the flare as a result of an emergency shutdown. According to commenters, this is inherent in all flare designs and has not previously been an issue because flare operating limits did not apply during malfunction events.

For this proposed work practice standard, owners or operators would need to develop a flare management plan for flares in the specified subset that identifies procedures for limiting discharges to the flare as a result of process upsets or malfunctions that cause the flare to exceed its smokeless capacity. In addition, for any flare in the specified subset that exceeds both the smokeless design capacity and visible emissions limit, we are proposing that owners or operators would need to conduct a specific root cause analysis and take corrective action to prevent the recurrence of a similarly caused event (similar to the prevention measures we are proposing in this rule to minimize the likelihood of a PRD release, see section IV.A.2.a of this preamble). We are proposing that if the root cause analysis indicates that the exceedance of the visible emissions limit is caused by operator error or poor maintenance, then the exceedance would be considered a deviation from the work practice standard. We are also proposing that a second event within a rolling 3-year period from the same root cause on the same equipment would be considered a deviation from the standard. Further, we are proposing that events caused by force majeure would be excluded from a determination of whether there has been a second event. Finally, and again excluding force majeure events, we are proposing that a third visible emissions limit exceedance occurring from the same flare in a rolling 3-year period would be a deviation from the work practice standard, regardless of the cause. We are proposing at 40 CFR 63.2550(i) to define a force majeure event as a release of HAP, either directly to the atmosphere from a PRD 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 MCPU (*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 miscellaneous organic chemical manufacturing process unit that impacts the MCPU's ability to operate.

With regard to the proposed rolling 3-year period for assessing a deviation of the work practice standard, the EPA evaluated the impacts of different frequencies and time periods to the number of events that would be the "backstop" (*i.e.*, a deviation of the standard) to ensure that corrective actions are meaningfully applied (see the memorandum, *Control Option Impacts for Flares Located in the Miscellaneous Organic Chemical Manufacturing Source Category,* which is available in the docket for this rulemaking). The EPA assumed that the best performers would have no more than one event every 7 years, or a probability of 14.3 percent of having an event in any given year. The EPA found that, over a long period of time such as 20 years, about half of these best performers would have two events in a 3-year period, which would still result in about half of the "best performing" flares having a deviation from the work practice standard if it was limited to two events in 3 years. Conversely, the EPA found that over a long time period such as 20 years, only 6 percent of the best performing flares would have three events in 3 years over this same time horizon. Based on this analysis, three events in 3 years would appear to be "achievable" for the average of the best performing flares.

c. Flare Tip Velocity

This action consolidates provisions related to flare tip velocity for flares in the specified subset. The MON references the flare provisions in 40 CFR 63.11(b) (through reference of 40 CFR part 63, subpart G, 40 CFR part 63, subpart SS, and Table 12 to 40 CFR part 63, subpart FFFF), which specify maximum flare tip velocities based on flare type (non-assisted, steam-assisted, or air-assisted) and the net heating value of the flare vent gas. For MON facilities using flares as APCDs, it is estimated that approximately 90 percent of these flares are either steam- or air-assisted (see the memorandum, *Control Option Impacts for Flares Located in the Miscellaneous Organic Chemical Manufacturing Source Category,* which is available in the docket for this rulemaking). These maximum flare tip velocities are required to ensure that the flame does not "lift off" the flare (*i.e.*, a condition where a flame separates from the tip of the flare and there is space between the flare tip and the bottom of the flame), which could cause flame instability and/or potentially result in a portion of the flare gas being released without proper combustion. We are proposing to remove the cross-reference to the General Provisions for flares in the specified subset and instead cross-reference 40 CFR part 63, subpart CC, to consolidate the provisions for maximum flare tip velocity into the MON as a single equation, irrespective of flare type (*i.e.*, steam-assisted, air-assisted, or non-assisted). Refer to 40 CFR 63.2450(e)(5) and 40 CFR 63.670(d), (i), and (k) for these proposed provisions.

Based on analysis conducted for the Petroleum Refinery Sector final rule, the EPA identified air-assisted test runs with high flare tip velocities that had high combustion efficiencies (see technical memorandum, *Petroleum Refinery Sector Rule: Evaluation of Flare Tip Velocity Requirements*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0212). These test runs exceeded the maximum flare tip velocity limits for air-assisted flares using the linear equation in 40 CFR 63.11(b)(8). When these test runs were compared with the test runs for non-assisted and steam-assisted flares, air-assisted flares appeared to have the same operating envelope as the non-assisted and steam-assisted flares. Therefore, for air-assisted flares in the specified subset, we are proposing the use of the same equation that non-assisted and steam-assisted flares currently use to establish the flare tip velocity operating limit. We are also proposing that the owner or operator determine the flare tip velocity on a 15-minute block average basis. See section IV.A.1.e of this preamble for our rationale for proposing to use a 15-minute block averaging period for determining continuous compliance.

In addition, we are proposing the same work practice standard for flare tip velocity during emergency releases (when the flow to the flare exceeds the smokeless capacity of the flare) as we are proposing for visible emissions for flares in the specified subset. Refer to 40 CFR 63.2450(e)(5) and 40 CFR 63.670(o) for these proposed provisions. Specifically, instead of owners and operators meeting the flare tip velocity operating limit at all times for flares in the specified subset, we are proposing that the owner or operator establish the smokeless capacity of each flare based on design specification of the flare, and that the flare tip velocity operating limit would only apply when the flare vent gas flow rate is below its smokeless capacity. We are proposing a work practice standard for flares in the specified subset for the limited times (*i.e.*, during emergency releases) when the flow to the flare exceeds the smokeless capacity of the flare, based on comments the EPA received on the proposed Petroleum Refinery Sector rule. In the Petroleum Refinery Sector final rule, the EPA explained that numerous comments on the proposal suggested that flares are not designed to meet the flare tip velocity requirements when being operated beyond their smokeless capacity (80 FR 75178). According to commenters, flares are commonly operated during emergency releases at exit velocities greater than 400 feet per second (which is 270 miles per hour), and this is inherent in all flare designs and has not previously been an issue because flare operating limits did not apply during malfunction events.

For the proposed work practice standard, owners or operators would develop a flare management plan for flares in the specified subset identifying procedures that they intend to follow in order to limit discharges to the flare as a result of process upsets or malfunctions that cause the flare to exceed its flare tip velocity operating limit. In addition, we are proposing that owners or operators would conduct a specific root cause analysis for flares in the specified subset and take corrective action to prevent the recurrence of a similarly caused event, similar to the prevention measures we are proposing in this rule to minimize the likelihood of a PRD release (see section IV.A.2.a of this preamble), for any flare event above smokeless design capacity that also exceeds the flare tip velocity operating limit. We are proposing that if the root cause analysis indicates that the exceedance is caused by operator error or poor maintenance, then the exceedance would be considered a deviation from the work practice standard. We are also proposing that a second event where the flare tip velocity operating limit is exceeded within a rolling 3-year period from the same root cause on the same equipment would be considered a deviation from the standard. Further, we are proposing that events caused by force majeure (see section IV.A.1.b of this preamble for a proposed definition of force majeure) would be excluded from a determination of whether there has been a second event. Finally, and again excluding force majeure events, we are proposing that a third event where the flare tip velocity operating limit is exceeded exceedance occurring from the same flare in a rolling 3-year period would be a deviation from the work practice standard, regardless of the cause. As previously explained in section IV.A.1.b of this preamble, we believe no more than three events in 3 years appear to be “achievable” for the average of the best performing flares. We solicit comment on the proposed work practice standard for flare tip velocity during emergency releases (when the flow to the flare exceeds the smokeless capacity of the flare).

Finally, we are also proposing not to include the provision for the special flare tip velocity equation in the General Provisions at 40 CFR 63.11(b)(6)(i)(A) for non-assisted flares in the specified subset with hydrogen content greater than 8 percent. This equation, which was developed based on limited data from a chemical manufacturer, has very limited applicability for flares used as APCDs in the Miscellaneous Organic Chemical Manufacturing source category because it only provides an alternative for non-assisted flares with large quantities of hydrogen. Available data indicates that approximately 90 percent of the flares used at MON facilities are either steam-assisted or air-assisted. Furthermore, we are proposing compliance alternatives that we believe provide a better way for flares in the specified subset with high hydrogen content to comply with the rule while ensuring proper destruction performance of the flare (see section IV.A.3.d of this preamble for the proposed compliance alternatives). Therefore, for non-assisted flares in the specified subset with hydrogen content greater than 8 percent that are used as ACPDs, we are not proposing to include this special flare tip velocity equation as a compliance alternative. We request comment on the need to include this equation.

d. Net Heating Value of the Combustion Zone Gas

The current provisions for flares in 40 CFR 63.11(b) specify that the flare vent gas meet a minimum net heating value of 200 British thermal units per standard cubic foot (Btu/scf) for non-assisted flares and 300 Btu/scf for air- and steam-assisted flares. The MON references these provisions (through reference of 40 CFR part 63, subpart G, 40 CFR part 63, subpart SS, and Table 12 to 40 CFR part 63, subpart FFFF), but neither the General Provisions nor the MON include specific requirements for monitoring the net heating value of the flare vent gas. Moreover, recent flare testing results indicate that the minimum net heating value alone does not address instances when the flare may be over-assisted because it only considers the gas being combusted in the flare and nothing else (*e.g.*, no assist media). However, many industrial flares use steam or air as an assist medium to protect the design of the flare tip, promote turbulence for the mixing, induce air into the flame, and operate with no visible emissions. Using excessive steam or air results in dilution and cooling of flared gases and can lead to operating a flare outside its stable flame envelope, reducing the destruction efficiency of the flare. In extreme cases, over-steaming or excess aeration can snuff out a flame and allow regulated material to be released into the atmosphere without complete combustion. As previously noted, because available data indicate that approximately 90 percent of all flares used as APCDs in the Miscellaneous Organic Chemical Manufacturing source category are either steam- or air-assisted, it is critical that we ensure the assist media is accounted for in some form. Recent flare test data have shown that the best way to account for situations of over-assisting is to consider the gas mixture properties at the flare tip in the combustion zone when evaluating the ability to combust efficiently. As discussed in the introduction to this section, the external peer review panel concurred with our assessment that the combustion zone properties at the flare tip are critical parameters to know in determining whether a flare will achieve good combustion. The General Provisions, however, solely rely on the net heating value of the flare vent gas, and we have determined that is not sufficient for the flares at issue.

In this proposal, in lieu of requiring compliance with the operating limits for net heating value of the flare vent gas in the General Provisions, we are proposing to cross-reference 40 CFR part 63, subpart CC, to include in the MON a single minimum operating limit for the net heating value in the combustion zone gas (NHVcz) of 270 Btu/scf during any 15-minute period for steam-assisted, air-assisted, and non-assisted flares in the specified subset. Refer to 40 CFR 63.2450(e)(5) and 40 CFR 63.670(e) and (m) for these proposed provisions. The Agency believes, given the results from the various data analyses conducted for the Petroleum Refinery Sector rule, that this NHVcz operating limit promulgated for flares in the Petroleum Refinery Sector source category is also appropriate and reasonable and will ensure flares in the specified subset meet the HAP destruction efficiencies in the standard at all times when operated in concert with the other proposed flare provisions (*e.g.*, pilot flame, visible emissions, and flare tip velocity requirements) (see the memoranda titled *Petroleum Refinery Sector Rule: Operating Limits for Flares* and *Flare Control Option Impacts for Final Refinery Sector Rule*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0206 and EPA-HQ-OAR-2010-0682-0748, respectively). In addition, we are proposing 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 for flares in the specified subset; however, owners or operators who wish to use the corrected hydrogen heat content must have a system capable of monitoring for the hydrogen content in the flare vent gas. The 1,212 Btu/scf value is based on a comparison between the lower flammability limit and net heating value of hydrogen compared to light organic compounds and has been used in several consent decrees issued by the EPA. Based on analyses conducted for the Petroleum Refinery Sector rule (see the memorandum titled *Flare Control Option Impacts for Final Refinery Sector Rule*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0748), the EPA determined that using a 1,212 Btu/scf value for hydrogen greatly improves the correlation between combustion efficiency and the combustion zone net heating value over the entire array of data.

Furthermore, in addition to the NHVcz operating limit, we are proposing a net heating value dilution parameter (NHVdil) for certain flares in the specified subset that operate with perimeter assist air. Refer to 40 CFR 63.2450(e)(5) and 40 CFR 63.670(f) and (n) for these proposed provisions. For air-assisted flares, use of too much perimeter assist air can lead to poor flare performance. Furthermore, based on our analysis of the air-assisted flare datasets (see technical memorandum, *Petroleum Refinery Sector Rule: Operating Limits for Flares*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0206), we determined a NHVdil of 22 British thermal units per square foot is necessary to ensure that there is enough combustible material available to adequately combust the gas and pass through the flammability region and also ensure that degradation of flare performance from excess aeration does not occur. We found that including the flow rate of perimeter assist air in the calculation of the NHVcz does not identify all instances of excess aeration and could (in some instances) even allow facilities to send very dilute vent gases to the flare that would not combust (*i.e.*, vent gases below their lower flammability limit could be sent to flare). Instead, the data suggest that the diameter of the flare tip, in concert with the amount of perimeter assist air (and other parameters used to determine NHVcz), provides the inputs necessary to calculate whether this type of flare is over-assisted. This dilution parameter is consistent with the combustion theory that the more time the gas spends in the flammability region above the flare tip, the more likely it will combust. Also, because both the volume of the combustion zone (represented by the diameter) and how quickly this gas is diluted to a point below the flammability region (represented by perimeter assist air flow rate) characterize this time, it is logical that we propose such a parameter.

We also found that some assist steam lines are purposely designed to entrain air into the lower or upper steam at the flare tip; and for flare tips with an effective tip diameter of 9 inches or more, there are no flare tip steam induction designs that can entrain enough assist air to cause a flare operator to have a deviation from the NHVdil operating limit without first deviating from the NHVcz operating limit. Therefore, we are proposing to allow owners or operators of flares in the specified subset whose only assist air is from perimeter assist air entrained in lower and upper steam at the flare tip and with a flare tip diameter of 9 inches or greater to comply only with the NHVcz operating limit. Steam-assisted flares with perimeter assist air and an effective tip diameter of less than 9 inches would remain subject to the requirement to account for the amount of assist air intentionally entrained within the calculation of NHVdil. However, we recognize that this assist air cannot be directly measured, but the quantity of air entrained is dependent on the assist steam rate and the design of the steam tube's air entrainment system. Therefore, we are proposing provisions to specify that owners or operators of these smaller diameter steam-assisted flares in the specified subset use the steam flow rate and the maximum design air-to-steam ratio of the steam tube's air entrainment system for determining the flow rate of this assist air. Using the maximum design ratio will tend to over-estimate the assist air flow rate, which is conservative with respect to ensuring compliance with the NHVdil operating limit.

Finally, we are proposing that owners or operators record and calculate 15-minute block average values for these parameters. Our rationale for selecting a 15-minute block averaging period is provided in section IV.A.1.e of this preamble. We solicit comment on the proposed revisions related to NHVcz.

e. Data Averaging Periods for Flare Gas Operating Limits

Except for the visible emissions operating limits as described in section IV.A.1.b, we are proposing to use a 15-minute block averaging period for each proposed flare operating parameter (*i.e.*, presence of a pilot flame, flare tip velocity, and NHVcz) to ensure that flares in the specified subset are operated within the appropriate operating conditions. We consider a short averaging time to be the most appropriate for assessing proper flare performance because flare vent gas flow rates and composition can change significantly over short periods of time. Furthermore, because destruction efficiency can fall precipitously when a flare is controlling vent gases below (or outside) the proposed operating limits, short time periods where the operating limits are not met could seriously impact the overall performance of the flare. Refer to the Petroleum Refinery Sector rule preambles (79 FR 36880 and 80 FR 75178) for further details supporting why we believe a 15-minute averaging period is appropriate.

Given the short averaging times for the operating limits, we are proposing special calculation methodologies to enable owners or operators to use “feed forward” calculations to ensure compliance with the operating limits on a 15-minute block average for flares in the specified subset. Specifically, we propose using the results of the compositional analysis determined just prior to a 15-minute block period for the next 15-minute block average. Owners or operators of flares in the specified subset will then know the vent gas properties for the upcoming 15-minute block period and can adjust assist gas flow rates relative to vent gas flow rates to comply with the proposed operating limits. In other words, “feed forward” means that owners or operators would use the net heating value in the vent gas (NHVvg) going into the flare in one 15-minute period to adjust the assist media (*i.e.*, steam or air) and/or the supplemental gas in the next 15-minute period, as necessary, to calculate an NHVcz limit of 270 Btu/scf or greater using the proposed equation. We recognize that when a subsequent measurement value is determined, the instantaneous NHVcz based on that compositional analysis and the flow rates that exist at the time may not be above 270 Btu/scf. We are proposing that this is not a deviation from the operating limit. Rather, we propose that the owner or operator is only required to make operational adjustments based on that information to achieve, at a minimum, the net heating value limit for the subsequent 15-minute block average. We are, however, proposing that failure to make adjustments to assist media or supplemental natural gas using the NHVvg from the previous period in the equation provided for calculating an NHVcz limit of 270 Btu/scf, would be a deviation from the operating limit. Alternatively, because the owner or operator could directly measure the NHVvg on a more frequent basis, such as with a calorimeter (and optional hydrogen analyzer), the process control system is able to adjust more quickly, and the owner or operator can make adjustments to assist media or supplemental natural gas more quickly. In this manner, the owner or operator is not limited by relying on NHVvg data that may not represent the current conditions. We are, therefore, also proposing that the owner or operator may opt to use the NHVvg in such instances from the same period to comply with the operating limit. For examples of "feed forward" calculations, please see Attachment 3 of the memorandum titled *Flare Control Option Impacts for Final Refinery Sector Rule*, in Docket ID Item No. EPA-HQ-OAR-2010-0682-0748.

We are also proposing to clarify that when determining compliance with the flare tip velocity and combustion zone operating limits specified in 40 CFR 63.670(d) and (e), the initial 15-minute block period starts with the 15-minute block that includes a full 15 minutes of the flaring event. In other words, we are proposing to clarify that the owner or operator demonstrate compliance with the velocity and NHVcz requirements starting with the block that contains the fifteenth minute of a flaring event; and 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. We solicit comment on these proposed revisions.

f. Flares in Dedicated Service

In lieu of requiring the composition of the vent gas and the NHVvg to be continuously monitored, we are proposing an alternative monitoring approach for flares in the specified subset that are in dedicated service that have consistent composition and flow. We believe that these types of flares, which have limited flare vent gas streams, do not need to have the same type of ongoing monitoring requirements as those with more variable waste streams. Thus, we are proposing an option that owners or operators can use to demonstrate compliance with the operating requirements for flares in the specified subset that are in dedicated service to a specific emission source, such as a transfer rack operation consistently loading the same material. We are proposing that owners or operators will need to submit an application for the use of this alternative compliance option. We are proposing that the application include a description of the system, characterization of the vent gases that could be routed to the flare based on a minimum of seven grab samples (14 daily grab samples for continuously operated flares), and specification of the net heating value that will be used for all flaring events (based on the minimum net heating value of the grab samples). In other words, for flares in the specified subset that are in dedicated service, we are proposing that the minimum NHVvg determined from the grab samples could be used in the equation at 40 CFR 63.670(m)(1) for all flaring events to determine NHVcz. We are also proposing to allow engineering estimates to characterize the amount of gas flared and the amount of assist gas introduced into the system. For example, we believe that the use of fan curves to estimate air assist rates would be acceptable. We propose that flare owners or operators would use the net heating value determined from the initial sampling phase and measured or estimated flare vent gas and assist gas flow rates, if applicable, to demonstrate compliance with the standards. Refer to 40 CFR 63.2450(e)(5) and 40 CFR 63.670(j)(6) for these proposed provisions. Finally, for owners and operators that must comply with the continuous monitoring requirements, we are proposing additional clarifications and requirements at 40 CFR 63.2450(e)(5) when using a gas chromatograph or mass spectrometer for compositional analysis. We solicit comment on the proposed revisions related to flares in dedicated service.

g. Pressure-Assisted Multi-Point Flares

Pressure-assisted flares are conceptually similar, yet technically different in both design and operation compared to more traditional elevated flare tip designs (*e.g.*, steam-assisted, air-assisted, and non-assisted flare tips). Pressure-assisted flares operate by taking advantage of the pressure upstream of the flare tip to create a condition whereby air is drawn into contact and mixed with high exit velocity flared gas, resulting in smokeless flare operation and emissions reductions at least equivalent to those of traditional flares types, if properly designed and operated. Pressure-assisted flares can be used in a single flare burner type layout or in staged arrays with many identical flare burners. These staged arrays can be elevated or at ground level; however, we are only aware of ground level staged array systems, that are commonly referred to as MPGF, at three facilities in the Miscellaneous Organic Chemical Manufacturing source category that emit ethylene oxide or produce olefins and/or polyolefins. Two of these MPGFs are used solely as a secondary flare to control large emissions events that result during periods of SSM. MPGFs have multiple (*e.g.*, hundreds) flare burners at ground level. The flare burners in a MPGF are designed with a staging system that opens and closes staging valves according to gas pressure in the flare header such that the stages, and accompanying flare burners for those stages, are activated to control emissions as the flare vent gas flow and pressure increase in the flare header, or are deactivated as the flare vent gas flow and pressure decrease in the flare header. The flare burners in a MPGF are typically lit with a pilot flame system where the first burners on a stage are lit by the pilot flame and the flame propagates (*i.e.*, cross-lights) down the stage to the remaining burners on the stage (*e.g.*, like how burners on a gas grill would light). The MPGF system is surrounded by a panel type fence to allow air in for combustion as well as to protect nearby workers from the radiant heat of the flare system.

MPGF are often used as secondary flares to control large emissions events that result during periods of SSM. With the elimination of the SSM exemption (see section IV.E.1 of this preamble for additional discussion), proposing requirements for this unique flare type for flares in the specified subset is an important consideration given that some facilities currently use them as APCD. Based on our review of recently approved AMEL requests for MPGF and the underlying data analyses that supported those decisions (see section II.D of this preamble), MPGF can achieve at least equivalent reductions in volatile organic compounds (VOC) and organic HAP to traditional elevated flares; however, different operating requirements are needed for these flare types to ensure a high level of control is achieved given that the individual flare burners are designed to operate at high velocities (*i.e.*, up to sonic velocity). Important considerations for proper design and operation of MPGF center around the following: (1) flare flame stability, (2) pilot flame presence and its interplay with proper cross-lighting, (3) operation of the MPGF with no visible emissions, and (4) monitoring of certain parameters of the MPGF and the vent gases it controls for purposes of compliance assurance.

In reviewing the initial MPGF AMEL requests by Dow Chemical and ExxonMobil (80 FR 8023-8030, February 13, 2015), the Agency noted two general conclusions from the test data supporting the AMEL requests that were consistent with 1985 studies[27] conducted by the EPA on pressure-assisted flares. The first general conclusion was that “flare head design can influence the flame stability curve.” The second general conclusion was that “stable flare flames and high (>98-99 percent) combustion and destruction efficiencies are attained when flares are operated within operating envelopes specific to each flare burner and gas mixture tested. Operation beyond the edge of the operating envelope can result in rapid flame de-stabilization and a decrease in combustion and destruction efficiencies.” In reviewing all the available data in the MPGF AMEL docket (*i.e.*, Docket ID No. EPA-HQ-OAR-2014-0738), we found these two

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[27] Pohl, J. and N. Soelberg. 1985. *Evaluation of the efficiency of industrial flares: Flare head design and gas composition*. EPA-600/2-85-106. Prepared for U.S. EPA Office of Air Quality Planning and Standards.

general observations were still valid conclusions. The data clearly show that for some test runs flare flameouts occurred, meaning the flares were not operated within the proper envelope to produce a stable flame. In reviewing these data, we observed that all flare flameouts occurred for the various burners/waste gas mixtures tested below an NHVcz of 800 Btu/scf. Thus, we selected a minimum NHVcz of 800 Btu/scf to ensure the MPGF at facilities in the Miscellaneous Organic Chemical Manufacturing source category that emit ethylene oxide or produce olefins and/or polyolefins are operated within the proper envelope to produce a stable flame and achieve high destruction efficiencies at least equivalent to those as the underlying MON standards. Above this level, no flare flameouts are observed, and high combustion/destruction efficiencies at least equivalent to those as the underlying MON MACT standards are achieved. Thus, to that end, we are proposing to not allow use of the “feed forward” calculation approach (discussed in section IV.A.1.e of this preamble) to demonstrate compliance with the NHVcz limit of 800 Btu/scf. We are only proposing allowance of complying with a straight 15-minute block average for these flare types in the specified subset.

Another unique characteristic of MPGF is that they may use a cross-lighting pilot flame system as a means of ignition to initially combust the waste gases sent to the flare burners on a particular staged array. Thus, we also reviewed the equipment-specific set-ups in the test data that allowed for successful cross-lighting of MPGF. Based on review of the data, it appears that one option would be for facilities to conduct performance demonstrations to demonstrate successful cross-lighting on a minimum of three burners (*i.e.*, as outlined in the Framework for Streamlining Approval of Future Pressure-Assisted MPGF AMEL Requests, 81 FR 23480, April 21, 2016). However, given the data before us in the MPGF AMEL docket, and rather than requiring facilities to conduct a performance demonstration, it appears that an equipment standard that sets an upper limit on the distance between burners of 6 feet will ensure a successful cross-lighting on a stage of burners in a MPGF.

Furthermore, in reviewing the site-specific AMEL standards that facilities are complying with for MPGF,[28] we believe these same site-specific standards, if applied to all MPGF in the specified subset, would demonstrate at least equivalent emissions reductions to the underlying MON MACT standards as well as demonstrate at least equivalent reductions to the new operational and monitoring requirements we are proposing for more traditional, elevated flare tips. Therefore, we are proposing that owners or operators of MPGF for the specified flare subset (1) maintain an $NHV_{cz} \geq 800$ Btu/scf over a short averaging period (*i.e.*, 15-minutes); (2) continuously monitor the NHV_{cz} and flare vent gas flow rate; (3) continuously monitor for the presence of a pilot flame, and if cross-lighting is occurring on a particular stage of burners, ensuring that the stage has a minimum of two pilots per stage that are capable of igniting all flare vent gases sent to that stage; (4) operate the MPGF with no visible emissions (except for 5 minutes during any 2 consecutive hours); (5) maintain a distance of no greater than 6 feet between any two burners on a stage of burners that use cross-lighting; and (6) monitor to ensure the staging valves for each stage of the MPGF operate properly so that the flare will control vent gases within the range of the tested conditions based on the flare manufacturer's recommendations.

Finally, although we are unaware of any MON facilities that use multi-point elevated flares in the specified flare subset, we recognize that an owner or operator may elect to use this type of flare design in the future. Given the design similarities of a multi-point elevated flare

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[28] 80 FR 52426, August 31, 2015; 81 FR 23480, April 21, 2016; and 82 FR 27822, June 19, 2017.

when compared to a MPGF (*i.e.*, each flare type uses pressure-assisted burners with staged arrays), we determined that our analyses of the test data (including our review of approved AMEL requests) related to MPGF that control waste gases could also apply to multi-point elevated flares in the specified subset that combust waste gases. Therefore, we are proposing that owners and operators of multi-point elevated flares meet the same requirements that we are proposing for MPGF. In other words, the proposed requirements discussed in this section of the preamble would apply to all pressure-assisted multi-point flares (*i.e.*, MPGF and multi-point elevated flares) in the specified subset. We are soliciting comment on whether this approach is appropriate, and whether test data are available for multi-point elevated flares that control waste gases from MON facilities. We are also soliciting comment on whether the proposed requirements for pressure-assisted multi-point flares should ultimately supersede the currently approved MPGF AMEL requests at MON facilities.

h. Impacts of the Flare Operating and Monitoring Requirements

The EPA expects that the newly proposed requirements for flares in the specified subset that are discussed in this section will affect flares at 21 facilities nationwide. We assumed that these facilities each operate one flare that either controls ethylene oxide emissions or controls emissions from an olefins and/or polyolefins process. The ACC provided the EPA a distribution of flares by type for 68 MON facility flares at 18 facilities. We used this information to estimate the flare type for each of the 21 flares at MON facilities that control ethylene oxide emissions or produce olefins and/or polyolefins. Based on this information, we estimate that the majority of these flares (about 90 percent) have traditional elevated flare tip designs (*e.g.*, steam-assisted, air-assisted, and non-assisted flare tips) that receive flare vent gas flows on a regular basis (*i.e.*, other than during periods of SSM). We also reviewed consent decrees and approved AMEL requests issued to these facilities. Based on this information, five of the 21 MON facilities are expected to already have the monitoring equipment needed to better control their flares. Specifically, two facilities operate under consent decree only, two facilities operate MPGF under approved AMEL requests only, and one facility both operates under consent decree and also operates a MPGF under an approved AMEL request. Therefore, we estimate that only 16 flares are expected to incur costs, based on the assumption that owners and operators of flares at the five facilities with consent decrees and/or approved AMEL requests already have the monitoring equipment in place. Costs were estimated for each flare for a given facility, considering current monitoring systems already installed on each individual flare. Given that the same type of equipment is used for flares in the Miscellaneous Organic Chemical Manufacturing source category and for the petroleum refinery sector, costs for any additional monitoring systems needed were estimated based on installed costs received from petroleum refineries and, if installed costs were unavailable, costs were estimated based on vendor-purchased equipment. The baseline emission estimate and the emission reductions achieved by the proposed flare requirements were estimated by back-calculating from the NEI-reported VOC and HAP controlled emissions assuming a 93.1-percent baseline control efficiency, derived from the best available data.[29] The results of the impact estimates are summarized in Table 3 of this preamble. We note that the requirements for flares in the specified subset that we are proposing in this proposal will ensure compliance with the MACT standards in the MON when flares are used as an APCD. Because we are not changing the underlying MACT standards in the MON, we did

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[29] API, the National Petrochemical and Refiners Association (NPRA; now known as the American Fuels and Petrochemical Manufacturers (AFPM)), and the ACC provided the EPA with a dataset that includes detailed hourly operational information for 38 steam-assisted flares, characterizing different operating conditions by waste gas flow rate, steam flow rate, waste gas composition, and duration of that operating condition.

not include any of the estimated excess emissions from flares in the summary of total estimated emissions reductions for this action. However, we estimate that the proposed operational and monitoring requirements have the potential to reduce excess emissions from flares in the specified subset by approximately 260 tpy of HAP and 1,300 tpy of VOC. The VOC compounds are non-methane, non-ethane total hydrocarbons. According to the modeling file we used to assess risk (see section III.C.1 of this preamble), there are approximately 30 individual HAP compounds included in the emission inventory for flares in the specified subset, but many of these are emitted in trace quantities. The majority of the HAP emissions from flares are attributable to HCl, hexane, vinyl acetate, and 1,3-butadiene. Note that this analysis does not consider costs incurred for flares outside of the specified subset for which an owner or operator may choose to opt-in to the proposed requirements. For more detail on the impact estimates, see the technical memorandum titled *Control Option Impacts for Flares Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, which is available in the docket for this rulemaking.

Table 3. Nationwide Cost Impacts for Flares at MON Facilities that Control Emissions of Ethylene Oxide or Emissions from Olefins or Polyolefins Processes[1]

Control Description	Total Capital Investment (Million $)	Total Annualized Costs (Million $/yr)
Flare Operational and Monitoring Requirements	17.0	4.05
Work Practice Standards for Flares Operating Above Their Smokeless Capacity	0.16	0.04
Total	17.2	4.09

[1] Costs are calculated for the year 2016.

2. Vent Control Bypasses

a. Pressure Relief Devices

The MON defines several terms applicable to process vents at 40 CFR 63.2550. The current definition of "continuous process vent" excludes "relief valve discharges," and instead, the MACT standard in the MON recognizes relief valve discharges to be the result of malfunctions. The acronym "PRD" means pressure relief device and is common vernacular to describe the variety of devices regulated as pressure relief valves (see the end of this section for our proposed definitions of pressure relief device and relief valve, to provide clarity). PRDs are designed to remain closed during normal operation. Typically, the Agency considers PRD releases as the result of an overpressure in the system caused by operator error, a malfunction such as a power failure or equipment failure, or other unexpected cause that results in immediate venting of gas from process equipment to avoid safety hazards or equipment damage.

The MON currently regulates PRDs when they are seated through equipment leak provisions that are applied only after the pressure relief occurs (*i.e.*, conduct monitoring with EPA Method 21 of Appendix A–7 to 40 CFR part 60 after each pressure release using a leak definition of 500 ppm); however, these provisions do not apply to an emissions release from a PRD. In addition, the MON follows the EPA's then-practice of exempting SSM events from otherwise applicable emission standards. Consequently, with PRD releases defined as unplanned, nonroutine, and the result of malfunctions, the MON did not restrict PRD releases to the atmosphere but instead treated them in the same manner as malfunctions subject to the SSM exemption provision. In *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), the Court determined that the SSM exemption violates the CAA. Section IV.E.1 of this preamble contains additional discussions on the removal of the SSM exemption provision for this source category. As a result, we evaluated the MACT standard in the MON for PRD discharges to ensure a standard continuously applies, consistent with the *Sierra Club* SSM decision.

CAA section 112(d)(1) specifies that the EPA may "distinguish among classes, types, and sizes of sources" when establishing standards. (In establishing standards under CAA section

112(d), the EPA may “distinguish among classes, types, and sizes of sources within a category or sub-category.” CAA section 112(d)(1). See *Sierra Club v. EPA*, 479 F.3d 875, 885 (D.C. Cir. 2007)). We are proposing two subcategories of PRDs for the MACT standard in the MON to distinguish between classes of PRDs: (1) PRDs designed to vent through a closed-vent system to a control device or to a process, fuel gas system, or drain system (referred to as PRDs that vent to a control system); and (2) PRDs designed to vent to the atmosphere, if a release were to occur. We are proposing to subcategorize PRDs by class because of design differences between the numerous PRDs at MON facilities that vent to a control system and that vent to the atmosphere. Currently, MON facilities are required to evaluate PRDs as part of their risk management and process safety management programs. When implementing these programs, facilities identify PRDs that they intend to control as compared to those they elect not to control (and that have the potential to vent to the atmosphere if a release were to occur). Facilities do not control certain PRDs because of technical or site-specific safety considerations, such as PRDs that release chemicals that could be incompatible with vent streams in downstream controls.

We evaluated each subcategory of PRDs separately to ensure that a standard continuously applies. Essentially, PRDs that vent to a control system are already complying with the process vent standards and are, thus, presumably, already appropriately controlled. However, PRDs that vent to atmosphere cannot meet the current continuous process vent standards. Therefore, we examined whether it would be feasible to regulate PRDs that vent to atmosphere under CAA section 112(d)(2) and (3). As detailed here, we determined it was feasible to regulate PRDs that vent to atmosphere under CAA section 112(h) and are proposing work practice standards at 40 CFR 63.2480(e) that are intended to reduce the number of PRD releases and will incentivize owners or operators to eliminate the causes of PRD releases to the atmosphere.

No MON facility is subject to numeric emission limits for PRDs that vent to the atmosphere. Further, we do not believe it is 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. CAA section 112(h)(1) states that the EPA may prescribe a work practice standard or other requirement, consistent with the provisions of CAA sections 112(d) or (f), in those cases where, in the judgment of the Administrator, it is not feasible to enforce an emission standard. CAA section 112(h)(2)(B) further 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 consider it appropriate to establish a work practice standard for PRDs that vent to atmosphere as provided in CAA section 112(h), because the application of a measurement methodology for PRDs that vent to atmosphere is not practicable due to technological and economic limitations. First, it is not practicable to use a measurement methodology for PRD releases that vent to atmosphere. PRDs are designed to remain closed during normal operations and release emissions only during nonroutine and unplanned events, and the venting time can be very short and may vary widely in composition and flow rate. These unique event characteristics make it infeasible to collect a grab sample of the gases when a PRD release occurs, and a single grab sample would also likely not account for potential variation in vent gas composition. Additionally, it would not be cost-effective to construct an appropriate conveyance and install and operate continuous monitoring systems for each individual PRD that vents to atmosphere in order to attempt to quantitatively measure a release event that may occur only a few times in a 3-year period. (See *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 664-67 (2016).) Further, we have not identified any available, technically feasible continuous emission monitoring system (CEMS) that can accurately determine a mass release quantity of VOC or HAP given the flow, composition, and composition variability of potential PRD releases that vent to the atmosphere from MCPUs. Rather, we have identified only monitoring systems capable of alerting an owner or operator when a PRD release occurs. Consequently, we concluded that it is appropriate to establish a work practice standard for PRDs that vent to atmosphere as provided in CAA section 112(h).

We also reviewed information about MON facilities to determine how the best performers are minimizing emissions from PRDs that vent to atmosphere. We first reviewed the requirements in the EPA's Chemical Accident Prevention Provisions (40 CFR part 68) and Occupational Safety and Health Administration's (OSHA) Process Safety Management rule (29 CFR 1910.119). These rules focus on planning for and minimizing or preventing scenarios which would result in releases of chemicals. For example, as stated in Appendix C to the OSHA rule, "Process safety management is the proactive identification, evaluation and mitigation or prevention of chemical releases that could occur as a result of failures in process, procedures or equipment." The rules are applicable to any equipment in the process, and relief valves are identified in each rule as an applicable source to evaluate. The EPA and OSHA rules have similar requirements, except that applicability determination is unique to each rule. Owners or operators are subject to the EPA's Chemical Accident Prevention Provisions at 40 CFR part 68 if a process has more than a threshold quantity of a regulated substance. Regulated substances and their thresholds are listed at 40 CFR 68.130. Owners or operators are subject to OSHA's Process Safety Management rule at 29 CFR 1910.119 if a process involves either a chemical that is above specified threshold quantities (listed in appendix A to 29 CFR 1910.119) or a Category 1 flammable gas or liquid. MON facilities may be subject to the Chemical Accident Prevention

Provisions rule, as identified in their title V permit (40 CFR 68.215 requires permits to list part 68 as an applicable requirement, if subject). As a result, we further reviewed this rule for consideration in developing the work practice standard.

The EPA's Chemical Accident Prevention Provisions require a prevention program. Facilities subject to the MON would fall under prevention program 3. Prevention program 3 includes the following: documentation of process safety information, conducting a hazard analysis, documentation of operating procedures, employee training, on-going maintenance, and incident investigations. The process safety information documented must include information pertaining to the hazards of the regulated substances in the process, the technology of the process, and the process equipment (including relief valves). When conducting the hazard analysis, facilities must identify, evaluate, and control the hazards in the process; controls may consider the application of detection methodologies (*e.g.*, process monitoring and control instrumentation) to provide early warning of releases. The operating procedures must address multiple operating scenarios (*e.g.*, normal operations, startup, emergency shutdown) and provide instructions for safely conducting process activities. Conducting the hazard analysis and documenting operating procedures are similar to prevention measures, discussed below, though we note a specific number of measures or controls is not specified for the program 3 prevention program. Incident investigations must document the factors that contributed to an incident and any resolutions and corrective actions (incident investigations are consistent with root cause analysis and corrective action, discussed below). Facilities are also required to document this information in a Risk Management Plan that must be updated at least every 5 years.

Next, we considered that some companies operating MON facilities also own and operate petroleum refineries and may have established company-wide best practices as a result of specific state and federal requirements. For example, petroleum refineries and chemical plants located in certain counties in California are subject to and complying with specific requirements for PRDs such as the Bay Area Air Quality Management District (BAAQMD) Rule 8-28-304 and South Coast Air Quality Management District (SCAQMD) Rule 1173. The BAAQMD rule requires implementation of three prevention measures, and both rules require root cause analysis and corrective action for certain PRDs. These rules also formed the basis of the work practice standards promulgated for PRD releases at petroleum refineries in the Petroleum Refinery Sector RTR performed by the EPA (80 FR 75178, December 1, 2015).

Considering our review of the EPA's Chemical Accident Prevention Provisions and company-wide best practices that MON facilities may have implemented, we expect that the best performing MON facilities have implemented a program for PRDs that vent to the atmosphere that consists of using at least three prevention measures and performing root cause analysis and corrective action in the event that a PRD does release emissions directly to the atmosphere. We used this information as the basis of the work practice standards that we are proposing at 40 CFR 63.2480(e). Examples of prevention measures include the following: flow indicators, level indicators, temperature indicators, pressure indicators, routine inspection and maintenance programs, operator training, inherently safer designs, safety instrumentation systems, deluge systems, and staged relief systems where the initial PRD discharges to a control system.

We are also proposing a limit on the number of PRD releases that would result in a deviation from the work practice standard for PRDs that vent to the atmosphere. We believe setting criteria to determine a deviation is necessary for the work practice to be effective. We considered limits on the number of PRD releases in both 3- and 5-year periods. Based on a Monte Carlo analysis of random rare events (as conducted for the Petroleum Refinery Sector rule[30]), we note that it is quite likely to have two or three events in a 5-year period when a long time horizon (*e.g.*, 20 years) is considered. Therefore, we are proposing to limit the number of PRD releases from a single PRD to either one, two, or three (depending on the root cause) in a 3-year period as the basis of a deviation from the work practice standard. We are proposing that it is a deviation from the work practice standard if a single PRD that vents to atmosphere has two releases within a 3-year period due to the same root cause. We believe that this provision will help ensure that root cause/corrective action are conducted effectively. Otherwise, we are proposing that it is a deviation from the work practice standard if a single PRD that vents to atmosphere has three releases within a 3-year period for any reason. In addition, we are proposing that any PRD release for which the root cause was determined to be operator error or poor maintenance is a deviation from the work practice standard. Refer to 40 CFR 63.2480(e)(3)(v) for these proposed provisions. We are proposing that “force majeure” events would not be included when counting the number of releases. “Force majeure” events result from natural disasters, acts of war or terrorism, or external power curtailment beyond the facility’s control. These types of events are beyond the control of the owner or operator. We are providing that these events should not be included in the event count, but that they would be subject to the root cause analysis in order to confirm whether the release was caused by a force majeure event. Based on our cost assumptions, the nationwide capital cost for complying with the PRD work practice requirements is $6.03 million and the annualized capital costs is $0.58 million.

In addition, we believe that it is appropriate to exclude certain types of PRDs that have very low potential to emit based on their type of service, size, and/or pressure from the proposed work practice standard for PRD releases that vent to atmosphere. Both the Chemical Accident

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[30] See 80 FR 75217, December 1, 2015.

Prevention Provisions and the California petroleum refinery PRD rules also exempt or impose simpler requirements for certain PRDs. We are proposing at 40 CFR 63.2480(e)(5) that the following types of PRDs would not be subject to 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. Each of the types of PRDs that we are proposing are not subject to the work practice standard are discussed in greater detail here. With regard to PRDs with a design release pressure of less than 2.5 psig, it is technically infeasible to pipe sources with a release pressure of less than 2.5 psig to a flare (or other similar control system) because the back pressure in the flare header system generally exceeds 2.5 psig. Therefore, we are proposing that PRDs with a design release pressure of less than 2.5 psig are not subject to the work practice standard. With regard to PRDs in heavy liquid service, any release from a PRD in heavy liquid service would have a visual indication of a leak and any repairs to the valve would have to be further inspected and, if necessary, repaired under the existing equipment leak provisions. Therefore, we are proposing that PRDs in heavy liquid service are not subject to the work practice standard. In addition, we are proposing that PRDs designed solely to release due to liquid thermal expansion are not subject to the work practice standard. We expect that releases from these thermal relief valves would be insignificant. Finally, we are also proposing that pilot-operated PRDs (where emissions can be released to the atmosphere through a pilot discharge vent) and balanced bellow PRDs (where emissions can be released to the atmosphere through a bonnet vent) are not subject to the work practice standard, if the primary release valve associated with the pilot-operated or balanced bellows PRD is vented through a control system. Pilot-operated and balanced bellows PRDs are primarily used for pressure relief when the back pressure of the discharge vent may be high or variable. Conventional pressure relief devices act on a differential pressure between the process gas and the discharge vent. If the discharge vent pressure increases, the vessel pressure at which the PRD will open increases, potentially leading to vessel over-pressurization that could cause vessel failure. Balanced bellows PRDs use a bellow to shield the pressure relief stem and top portion of the valve seat from the discharge vent pressure. A balanced bellows PRD will not discharge gas to the atmosphere during a release event, except for leaks through the bonnet vent due to bellows failure or fatigue. Pilot-operated PRDs use a small pilot safety valve that discharges to the atmosphere to effect actuation of the primary valve or piston, which then discharges to a control system. Balanced bellows or pilot operated PRDs are considered a reasonable and necessary means to safely control the primary PRD release.

For all PRDs in organic HAP service, owners or operators would still be required to comply with the leak detection and repair (LDAR) provisions, as they are currently applicable. Therefore, all PRDs that vent to the atmosphere would still perform LDAR to ensure the PRD properly reseats if a release does occur, and PRDs that vent to control systems would still be exempt from LDAR requirements given that if a release were to occur from this specific class of PRDs, it would vent to a closed vent system and control device.

Finally, to ensure compliance with the proposed work practice standard for PRDs that vent to the atmosphere, we are also proposing at 40 CFR 63.2480(e)(3) that sources monitor these PRDs 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. Pressure release events from PRDs that vent to atmosphere have the potential to emit large quantities of

HAP. When a pressure release occurs, it is important to identify and mitigate it as quickly as possible. For purposes of estimating the costs of this requirement, we assumed that operators would install electronic monitors on PRDs that vent to atmosphere to identify and record the time and duration of each pressure release. However, we are proposing to allow owners and operators to use a range of methods to satisfy these requirements, including the use of a parameter monitoring system (that may already be in place) on the process operating pressure that is sufficient to indicate that a pressure release has occurred as well as record the time and duration of that pressure release. Based on our cost assumptions, the nationwide capital cost of installing these electronic monitors is $12.7 million, and the annualized capital cost is $1.68 million per year.

We also considered requiring all PRDs to be vented to a control device as a beyond-the-floor requirement. While this would provide additional emission reductions beyond those we are establishing as the MACT floor, these reductions come at significant costs. Assuming 25 percent to 50 percent of PRDs already vent to a control device, the capital cost for controlling the remaining PRDs ranges from $2,540 million to $5,070 million, and the annualized cost ranges from $330 million to $660 million. The incremental cost effectiveness for requiring control of all PRDs that vent to atmosphere compared to the requirements described above exceeds $80 million per ton of HAP reduced. Consequently, we conclude that this is not a cost-effective option.

The EPA is also proposing a requirement that any future installed pilot-operated PRDs be the non-flowing type. As previously noted, under CAA section 112(d)(1), the EPA may “distinguish among classes, types, and sizes of sources” when establishing standards. There are two designs of pilot-operated PRDs: flowing and non-flowing. When a flowing pilot-operated

PRD is actuated, the pilot discharge vent continuously releases emissions; however, when a non-flowing pilot-operated PRD is actuated, the pilot discharge vent does not vent continuously. Although we expect pilot discharge vent emissions to be minimal for both designs, limiting the future use of flowing pilot-operated PRDs is warranted to prevent continuous release of emissions. Therefore, we are proposing at 40 CFR 63.2480(e)(8) to require future installation and operation of non-flowing pilot-operated PRDs at all affected sources.

The terms “pressure release,” “pressure relief device,” and “relief valve” are not defined in the MON; therefore, we are proposing a definition for each of these terms at 40 CFR 63.2550(i) that would apply only to the MON standards. We are proposing to define “pressure release” as the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device. This release can be one release or a series of releases over a short time period. We are proposing to define “pressure relief device” as 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. We are proposing to define “relief valve” as a type of pressure relief device that is designed to re-close after the pressure relief.

We solicit comment on all of the proposed revisions for PRDs. See the technical memorandum titled *Review of Regulatory Alternatives for Certain Vent Streams in the Miscellaneous Organic Chemical Manufacturing Source Category*, in the docket for this rulemaking for details on the assumptions and methodologies used in this analysis.

b. Closed-Vent System Containing Bypass Lines

For a closed-vent system containing bypass lines that can divert the stream away from the APCD to the atmosphere, the MON requires the owner or operator to either (1) install, maintain, and operate a continuous parametric monitoring system for flow on the bypass line that is capable of detecting whether a vent stream flow is present at least once every 15 minutes or (2) secure the bypass line valve in the non-diverting position with a car-seal or a lock-and-key type configuration. Depending on the emission source, the MON references bypass line requirements in either 40 CFR part 63, subparts G, H, and SS, or 40 CFR part 65, subpart F. Under option (2), the owner or operator is also required to inspect the seal or closure mechanism at least once per month to verify the valve is maintained in the non-diverting position (*e.g.*, see 40 CFR 63.998(d)(1)(ii)(B) for more details). To ensure standards apply to MON emission sources at all times, we are proposing at 40 CFR 63.2450(e)(6) that an owner or operator may not bypass the APCD at any time, and if a bypass is used, then we are proposing that owners and operators estimate and report the quantity of organic HAP released. We are proposing this revision because bypassing an APCD could result in a release of regulated organic HAP to the atmosphere and 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. We are also proposing that the use of a cap, blind flange, plug, or second valve on an open-ended valve or line is sufficient to prevent a bypass. We solicit comment on these proposed revisions.

c. Maintenance Activities

The EPA is proposing that emission limits apply at all times consistent with *Sierra Club v. EPA*. We recognize that this proposed change for vent streams that are periodically discharged will affect certain maintenance activities such as those that require equipment openings, and we consider maintenance activities a separate class of startup and shutdown emissions because there must be a point in time when the equipment can be opened, and any remaining emissions are vented to the atmosphere. We also acknowledge that it would require a significant effort to identify and characterize each of these potential release points (*e.g.*, for permitting purposes).

We reviewed state permit conditions and determined the best performers' permits specify that they meet certain conditions before they open equipment to the atmosphere. The conditions include thresholds regarding the lower explosive limit (LEL) and the mass of gas that may be emitted. Therefore, we are proposing a work practice standard at 40 CFR 63.2455(d)(1)(i) that prior to opening process equipment to the atmosphere during maintenance events, the equipment first be drained and purged to a closed system so that the hydrocarbon content is less than or equal to 10 percent of the LEL. For those situations where 10-percent LEL cannot be demonstrated, we are proposing at 40 CFR 63.2455(d)(1)(ii) that the equipment may be opened and vented to the atmosphere if 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. We are proposing this 5 psig threshold to acknowledge that a certain minimum pressure must exist for the flare header system (or other similar control system) to operate properly. We are also proposing at 40 CFR 63.2455(d)(1)(iii) that equipment may be opened when there is less than 50 pounds of VOC that may be emitted to the atmosphere.

We also acknowledge that installing a blind flange to prepare equipment for maintenance may be necessary and by doing so, the owner or operator may not be able to meet the proposed maintenance vent conditions mentioned above (*e.g.*, a valve used to isolate the equipment will not seat fully so organic material may continually leak into the isolated equipment). To limit the emissions during the blind flange installation, we are proposing at 40 CFR 63.2455(d)(1)(iv) depressurizing the equipment to 2 psig or less prior to equipment opening and maintaining pressure of the equipment where purge gas enters the equipment at or below 2 psig during the blind flange installation. The low allowable pressure limit will reduce the amount of process gas that will be released during the initial equipment opening, and the ongoing 2 psig pressure requirement will limit the purge gas rate. Together, these proposed provisions will limit the emissions during blind flange installation and will result in comparable emissions allowed under the proposed maintenance vent conditions mentioned above. We expect these situations to be rare and that the owner or operator would remedy the situation as soon as practical (*e.g.*, replace the isolation valve or valve seat during the next turnaround in the example provided above). Therefore, we are only proposing that this alternative maintenance vent limit be used under those situations where the proposed primary limits (*i.e.*, hydrocarbon content is less than or equal to 10 percent of the LEL, pressure is less than or equal to 5 psig, or VOC is less than 50 pounds) are not achievable and blinding of the equipment is necessary.

We expect that all MON facilities already have standard procedures in place when performing equipment openings. As such, the only costs incurred are for recordkeeping after each non-conforming event. We are proposing that owners or operators document each circumstance under which the alternative maintenance vent limit is used, providing an explanation as to why other criteria could not be met prior to equipment blinding and an estimate of the emissions that occurred during the equipment blinding process. We calculated the annual costs to be $2,340 per year. We solicit comment on the proposed revisions related to maintenance activities. For additional details and discussion, see the technical memorandum titled *Review of Regulatory Alternatives for Certain Vent Streams in the Miscellaneous Organic Chemical Manufacturing Source Category*, which is available in the docket for this rulemaking.

d. Flares and Fuel Gas Systems

The current definition of “batch process vent” at 40 CFR 63.2550(i) states that “gaseous streams routed to a fuel gas system(s)” are not batch process vents. Gas streams going to fuel gas systems are also exempt from the current definition of “continuous process vent” at 40 CFR 63.2550(i) by referencing 40 CFR 63.107(h)(3). In addition, other MON standards (*i.e.*, standards for storage tanks and transfer racks) also allow emissions to be routed to a fuel gas system for compliance purposes. A combustion device (typically a boiler or process heater) burning these gaseous streams as fuel effectively achieves the most stringent level of control (*i.e.*, 98-percent organic HAP reduction or an outlet organic HAP concentration of 20 ppmv). However, there can be instances when gaseous streams from the fuel gas system that would otherwise be combusted in a boiler or process heater are instead routed to a flare (*e.g.*, overpressure in the fuel gas system, used as flare sweep gas, used as flare purge gas). In cases where an emission source is required to be controlled in the MON standards but is routed to a fuel gas system, we are proposing that any flare receiving gases from that fuel gas system derived from an MCPU that has processes and/or equipment in ethylene oxide service or that produces olefins or polyolefins, comply with the flare operating and monitoring requirements discussed in section IV.A.1 of this preamble. We recognize that this proposed provision may require owners or operators that use fuel gas for any purpose (*e.g.*, flare sweep gas, flare purge gas, flare supplemental gas) in other flare APCDs that predominately control emissions from other source categories to comply with the proposed flare revisions discussed in section IV.A.1 of this preamble. Thus, in order to minimize this impact, we are proposing that any flare that utilizes fuel gas whereby the majority (*i.e.*, 50 percent or more) of the fuel gas in the fuel gas system is derived from an MCPU that has processes and/or equipment in ethylene oxide service or that produces olefins or polyolefins comply with the flare operating and monitoring requirements discussed in section IV.A.1 of this preamble. We solicit comment on these proposed revisions.

B. What are the results of the risk assessment and analyses?

As described in section III.C of this preamble, we conducted an inhalation risk assessment for all HAP emitted and multipathway and environmental risk screening assessments on the PB-HAP emitted. We present results of the risk assessment briefly below and in more detail in the document titled *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking.

1. Chronic Inhalation Risk Assessment Results

The results of the chronic baseline inhalation cancer risk assessment indicate that, based on estimates of current actual and allowable emissions, the MIR posed by the source category is 2,000-in-1 million driven by ethylene oxide emissions from storage tanks (75 percent), equipment leaks (15 percent), and process vents (8 percent). The total estimated cancer incidence based on actual and allowable emission levels is 0.4 excess cancer cases per year, or 1 case every 2.5 years. The population exposed to cancer risks greater than 100-in-1 million for actual and allowable emissions is approximately 18,000, and the population exposed to cancer risks greater than or equal to 1-in-1 million is approximately 2,900,000 (see Table 4 of this preamble). In addition, the maximum modeled chronic noncancer TOSHI for the source category based on actual and allowable emissions is estimated to be 1.

Table 4. Miscellaneous Organic Chemical Manufacturing Source Category Inhalation Risk Assessment Results

Number of Facilities[1]	Maximum Individual Cancer Risk (in 1 million)[2]	Estimated Population at Increased Risk of Cancer[2]		Estimated Annual Cancer Incidence (cases per year)[2]	Maximum Chronic Noncancer TOSHI[2]	Maximum Screening Acute Noncancer HQ
		> 100-in-1 Million	≥ 1-in-1 Million			
194	2,000	18,000	2,900,000	0.4	1	HQ_{REL} = 6 (acrolein)

[1] Number of facilities evaluated in the risk analysis.

[2] Maximum individual excess lifetime cancer risk due to HAP emissions from the source category.

[3] Actual emissions equal allowable emissions; therefore, actual risks equal allowable risks.

2. Screening Level Acute Risk Assessment Results

As presented in Table 4 of this preamble, the estimated worst-case acute exposures to emissions from the Miscellaneous Organic Chemical Manufacturing source category result in a maximum acute HQ of 6 based on the REL for acrolein (the next highest dose-response value for acrolein, the AEGL–1, results in an HQ of 0.2). There are 11 additional instances of acute HQs greater than 1 from the source category. Evaluation of the screening-level acute risk assessment results is provided in a memo to the docket titled *Evaluation of the Screening-Level Acute Risk Assessment Results for the Miscellaneous Organic Chemical Manufacturing (MON) Source Category*. Detailed information about the assessment is provided in *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this action.

3. Multipathway Risk Screening Results

The multipathway risk screening assessment resulted in a maximum Tier 2 cancer SV of 10 for POM for the farmer scenario. The Tier 2 SVs for all other PB-HAP emitted from the source category (mercury compounds, cadmium compounds, and arsenic compounds) were less than 1. The Tier 2 cancer SV for POM means that the maximum cancer risk from exposure to

POM emissions through ingestion of farm products is less than 10-in-1 million. No site-specific assessment using TRIM FaTE (which incorporates AERMOD deposition, enhanced soil/water run-off calculations, and model boundary identification) or Tier 3 screening assessment was deemed necessary due to the conservative nature of the Tier 2 screen and the hypothetical construct of the farmer scenario.

In evaluating the potential for multipathway risk from emissions of lead, we compared modeled annual lead concentrations to the primary NAAQS for lead (0.15 µg/m^3). The highest annual lead concentration of 0.0006 µg/m^3 is well below the NAAQS for lead, indicating low potential for multipathway risk of concern due to lead emissions.

4. Environmental Risk Screening Results

As described in section III.A of this preamble, we conducted an environmental risk screening assessment for the Miscellaneous Organic Chemical Manufacturing source category for the following pollutants: arsenic, cadmium, HCl, HF, lead, mercury (methyl mercury and mercuric chloride), and POMs.

In the Tier 1 screening analysis for PB-HAP (other than lead, which was evaluated differently), arsenic and cadmium emissions had no exceedances for any ecological benchmark. Divalent mercury emissions at three facilities had Tier 1 exceedances for the surface soil threshold level (invertebrate and plant communities) by a maximum SV of 10. Methyl mercury emissions at three facilities had Tier 1 exceedances for the surface soil NOAEL (avian ground insectivores and mammalian insectivores) by a maximum SV of 20. POM emissions at four facilities had Tier 1 exceedances for the sediment no-effect level by a maximum SV of 10, and one facility had a Tier 1 exceedance of the sediment threshold level by a maximum SV of 2.

A Tier 2 screening assessment was performed for divalent mercury, methyl mercury, and POM emissions. Neither divalent mercury, methyl mercury, nor POM emissions had a Tier 2 exceedance for any ecological benchmark.

We did not estimate any exceedances of the secondary lead NAAQS.

For HCl and HF, the average modeled concentration around each facility (*i.e.*, the average concentration of all off-site data points in the modeling domain) did not exceed any ecological benchmark. In addition, each individual modeled concentration of HCl and HF (*i.e.*, each off-site data point in the modeling domain) was below the ecological benchmarks for all facilities.

Based on the results of the environmental risk screening analysis, we do not expect an adverse environmental effect as a result of HAP emissions from this source category.

5. Facility-Wide Risk Results

An assessment of facility-wide (or “whole facility”) risks was performed as described above to characterize the source category risk in the context of whole facility risks. Whole facility risks were estimated using the NEI-based data described in section III.C of this preamble. The maximum lifetime individual cancer risk posed by the 194 modeled facilities, based on whole facility emissions, is 3,000-in-1 million, with ethylene oxide emissions from fugitive emissions and flares from the Synthetic Organic Chemical Manufacturing, Polyether Polyols Production, and Miscellaneous Organic Chemical Manufacturing source categories driving the risk. Regarding the noncancer risk assessment, the maximum chronic noncancer HI posed by whole facility emissions is estimated to be 7 (for the respiratory system as the target organ), driven by emissions of chlorine and methyl bromide from non-source category sources identified as brominated organic manufacturing.

6. What demographic groups might benefit from this regulation?

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 risk to individual demographic groups of the populations living within 5 km and within 50 km of the facilities. In the analysis, we evaluated the distribution of HAP-related cancer and noncancer risk from the Miscellaneous Organic Chemical Manufacturing source category across different demographic groups within the populations living near facilities.[31]

The results of the demographic analysis are summarized in Table 5 below. These results, for various demographic groups, are based on the estimated risk from actual emissions levels for the population living within 50 km of the facilities.

Table 5. Miscellaneous Organic Chemical Manufacturing Source Category Demographic Risk Analysis Results – 50 km Study Area Radius

		Population with Cancer Risk Greater than or Equal to 1 in 1 Million	**Population with Hazard Index Greater than 1**
	Nationwide	**Source Category**	
Total Population	317,746,049	2,858,862	0
	White and Minority by Percent		
White	62%	44%	0%
Minority	38%	56%	0%
	Minority by Percent		
African American	12%	21%	0%
Native American	0.8%	0.2%	0%
Hispanic or Latino (includes white and nonwhite)	18%	31%	0%
Other and Multiracial	7%	4%	0%

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[31] Demographic groups included in the analysis are: White, African American, Native American, Hispanic or Latino, other races and multiracial, people living below the poverty level, people living above the poverty level, over 25 and without a high school diploma, over 25 and with a high school diploma, and linguistically isolated people.

	Income by Percent		
Below Poverty Level	14%	16%	0%
Above Poverty Level	86%	84%	0%
	Education by Percent		
Over 25 and without a High School Diploma	14%	20%	0%
Over 25 and with a High School Diploma	86%	80%	0%
	Linguistically Isolated by Percent		
Linguistically Isolated	6%	8%	0%

The results of the Miscellaneous Organic Chemical Manufacturing source category demographic analysis indicate that emissions from the source category expose approximately 2,900,000 people to a cancer risk at or above 1-in-1 million and no one to a chronic noncancer TOSHI greater than 1. The percentages of the at-risk population in each demographic group (except for White and Non-Hispanic) are similar to or greater than their respective nationwide percentages.

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 Miscellaneous Organic Chemical Manufacturing Source Category Operations*, available in the docket for this action.

C. What are our proposed decisions regarding risk acceptability, ample margin of safety, and adverse environmental effect?

As noted in section III of this preamble, 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” (54 FR 38045, September 14, 1989). For this proposal, the EPA estimated risks based on actual and allowable emissions from the Miscellaneous Organic Chemical Manufacturing source category, and we considered these in determining acceptability.

1. Residual Risks Under the Current MACT Provisions

Under the current NESHAP, the risk results indicate that both the actual and allowable inhalation cancer risks to the individual most exposed are well above 100-in-1 million, which is the presumptive limit of acceptability. The estimated inhalation cancer risk to the individual most exposed to actual or allowable emissions from the source category is 2,000-in-1 million. The estimated incidence of cancer due to inhalation exposures is 0.4 excess cancer cases per year, or 1 excess case every 2.5 years. The population estimated to be exposed to cancer risks greater than 100-in-1 million for actual and allowable emissions is approximately 18,000, and the population estimated to be exposed to cancer risks greater than or equal to 1-in-1 million is approximately 2,900,000.

The estimated maximum chronic noncancer TOSHI from inhalation exposure for this source category is 1, indicating low likelihood of adverse noncancer effects from long-term inhalation exposures.

The multipathway risk assessment results indicated a maximum cancer risk of 10-in-1 million based on ingestion exposures estimated using the health protective risk screening assumptions of a Tier 2 farmer exposure scenario.

The acute risk screening assessment of reasonable worst-case inhalation impacts indicates a maximum acute HQ of 6 for acrolein based on the 1-hour REL. There are 11 additional instances of HQs greater than 1. For acute screening analyses, to better characterize the potential health risks associated with estimated reasonable worst-case acute exposures to HAP, we examine a wider range of available acute health metrics than we do for our chronic risk assessments. This is in acknowledgement that there are generally more data gaps and uncertainties in acute reference values than there are in chronic reference values. Examination of the range of available acute health metrics, in addition to the conservative (health-protective) assumptions built into the screening assessment, leads us to conclude that adverse effects from acute exposure to emissions from this category are not anticipated. More detailed information is provided in the memo to the docket titled *Evaluation of the Screening-Level Acute Risk Assessment Results for the Miscellaneous Organic Chemical Manufacturing (MON) Source Category*.

Considering all of the health risk information and factors discussed above, including the uncertainties discussed in section III of this preamble (and taking into account uncertainties in the 2016 updated URE for ethylene oxide and concerns raised by commenters, as discussed in section IV.C.3 of this preamble), the EPA proposes that the risks for this source category under the current MACT provisions are unacceptable. As noted in section II.A of this preamble, when risks are unacceptable, the EPA must determine the emissions standards necessary to reduce risk to an acceptable level without considering costs or technological feasibility. Therefore, we are proposing to revise the NESHAP for the Miscellaneous Organic Chemical Manufacturing (MON) source category pursuant to CAA section 112(f)(2) on the basis for risks being unacceptable.

2. Proposed Controls to Address Risks

We evaluated several control options for reducing risks. Based on the results of the risk assessment, we have identified ethylene oxide as the primary contributor to risks. Ethylene oxide is primarily used at MON facilities as a feedstock in the production of miscellaneous chemicals, including alkyl alkanolamines, agrochemical products, ethoxylates, surfactants, and batch-produced polyols and glycols that are not subject to other NESHAP. Information gathered in this rulemaking indicates that, of the nine facilities identified with ethylene oxide emissions from MON processes, three have emissions from process vents, four have emissions from storage tanks, and all nine have emissions from equipment leaks. We did not identify any ethylene oxide emissions from other MON process units (*e.g.*, heat exchange systems, wastewater, transfer operations); therefore, we are soliciting comment on data related to these other MON process units being potential sources of ethylene oxide emissions. Based on the available data, we analyzed control options for process vents, storage tanks, and equipment leaks to reduce risk.

Process vents and storage tanks as a source of ethylene oxide emissions. Emissions of ethylene oxide can occur from several types of process vents, such as distillation columns, evaporator vents, and vacuum operations, as well as during vapor displacements and heating losses. Storage tanks are used to store liquid and gaseous feedstocks for use in a process, as well as to store liquid and gaseous products from a process. Ethylene oxide is typically stored under pressure as a liquified gas but may also be present at lower concentrations within non-pressurized storage tanks. The pressurized tanks typically use a blanket of inert gas, most often nitrogen, to maintain a non-decomposable vapor space. Emissions from ethylene oxide pressure vessels occur both during loading operations and during the continuous purge of vapor space from non-loading operations.

The current MON standards divide process vents into Group 1 process vents, which require controls, and Group 2 process vents, which generally do not require controls. The Group 1 and Group 2 designations for process vents are based on uncontrolled emissions levels for process vents from batch processes and on flow rate and the total resource index values for process vents from continuous processes. The current MON standard requires uncontrolled

Group 1 process vents to reduce total HAP emissions by 98 percent by venting emissions through a closed-vent system to any combination of control devices or to vent emissions through a closed-vent system to a flare. The current MON standard also allows uncontrolled Group 1 batch process vents to be controlled by reducing uncontrolled emissions by 95 percent by venting through a closed-vent system to a recovery device. For process vents, the MON allows use of a design evaluation instead of a performance test to determine the percent reduction of control devices if the total uncontrolled HAP emissions being sent to the control device are less than 10 tpy.

Similarly, the current MON standards divide storage tanks into Group 1 storage tanks, which require control, and Group 2 storage tanks, which generally do not. The Group 1 and Group 2 designation for storage tanks is based on the volume of the storage tank and vapor pressure of the material stored. The current MON standards require uncontrolled Group 1 storage tanks to reduce total HAP emissions by 95 percent by venting emissions through a closed-vent system to any combination of control devices or to vent emissions through a closed-vent system to a flare. The MON allows certain storage tanks to be controlled using the floating roof requirements in 40 CFR part 63, subpart WW, but this option is not applicable to storage tanks containing pure ethylene oxide. For storage tanks, the MON allows use of a design evaluation instead of a performance test to determine the percent reduction of control devices for any quantity of total uncontrolled HAP emissions being sent to the control device.

Results from our risk assessment indicate that, of the source category MIR of 2,000-in-1 million, 8 percent of the risk is from process vent emissions of ethylene oxide and 75 percent of the risk is from storage tank emissions of ethylene oxide. The remaining risk is mostly from equipment leaks. To understand how to best address risk within the source category, we reviewed information gathered for this rulemaking for the three facilities identified with ethylene oxide emissions from process vents and the four facilities identified with ethylene oxide emissions from storage tanks. Of these emission process sources, only one storage tank was classified as Group 1 and was, therefore, required to control emissions. The remaining storage tanks and process vents are classified as Group 2 and are not currently required to control emissions. We note that the Group 1 storage tank contains pure ethylene oxide, and the Group 2 storage tanks contain ethylene oxide at lower concentrations. Performance test data for the scrubber controlling the Group 1 storage tank were unavailable because a design evaluation was used to demonstrate compliance in lieu of performance testing. Based on results from the risk assessment, we also determined that the current MACT provisions for process vents and storage tanks do not result in sufficient reductions of ethylene oxide emissions, and, therefore, we evaluated available control technologies with a higher level of control, as discussed below.

Proposed process vent and storage tank control technologies. To address the risk from ethylene oxide emissions from process vents and storage tanks, we performed a review of available control technologies and identified two options. The first technology is any control device capable of achieving 99.9-percent reduction of uncontrolled ethylene oxide emissions. The second technology is a flare meeting the proposed flare operating requirements discussed in section IV.A.1 of this preamble.

An example of a control technology that can achieve 99.9-percent reduction of uncontrolled ethylene oxide emissions is packed-tower gas absorbers, also referred to in this proposal as scrubbers. These scrubbers control emissions from MON process vents and storage tanks by absorbing ethylene oxide into aqueous systems. The absorbed ethylene oxide can then be reacted to form glycol or can be recovered for downstream use. These systems can be designed to achieve very high ethylene oxide removal, with information provided by one scrubber vendor claiming that many of these systems achieve 99.9 percent or greater removal of ethylene oxide from vent gas. Information gathered in this rulemaking indicates that MON facilities with ethylene oxide emissions from process vents and storage tanks commonly use scrubbers to control emissions.

Flares used as APCDs are expected to achieve 98-percent HAP destruction efficiencies when designed and operated according to the requirements in the General Provisions. As discussed in section IV.A.1 of this preamble, studies on flare performance indicate that these General Provision requirements are inadequate to ensure proper performance of flares at chemical manufacturing facilities, particularly when either assist steam or assist air is used. It is expected that flares controlling ethylene oxide, which is highly flammable and, therefore, readily controlled by combustion controls, operating under the improved efficiency standards proposed in this preamble would achieve more than the 98-percent destruction efficiency required by the flare standard. While we did not identify any process vents or storage tanks in ethylene oxide service that are being controlled primarily by a flare, it is reasonable to expect that, in the case that these streams were controlled by a flare, these requirements would provide the same level of control as other high efficiency ethylene oxide controls.

Equipment leaks as a source of ethylene oxide emissions. Emissions from equipment leaks occur in the form of gases or liquids that escape to the atmosphere through connection points (*e.g.*, threaded fittings) or through the moving parts of valves, pumps, compressors, PRDs, and certain types of process equipment. The equipment leak provisions of the MON require meeting control requirements of 40 CFR part 63, subparts H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks), UU (National Emission Standards for

Equipment Leaks - Control Level 2 Standards), or 40 CFR part 65, subpart F (the Consolidated Air Rule for Equipment Leaks) for existing MON processes and 40 CFR part 63, subpart UU, or 40 CFR part 65, subpart F, for new MON processes. The applicable equipment is those components, including pumps, compressors, agitators, pressure relief devices, sampling collection systems, open-ended valves or lines, valves, and connectors that contain or contact material that is 5 percent by weight or more of organic HAP, operate 300 hours per year or more, and are not in vacuum service. The equipment leak requirements vary by equipment (component) type but require LDAR using monitoring with EPA Method 21 of appendix A–7 to 40 CFR part 60 at certain frequencies (*e.g.*, monthly, quarterly, every 2 quarters, annually) and have varying leak definitions (*e.g.*, 500 ppm, 1,000 ppm, 10,000 ppm) depending on the type of service (*e.g.*, gas and vapor service or in light liquid service). The LDAR requirements for components in heavy liquid service include sensory monitoring and the use of EPA Method 21 monitoring if a leak is identified.

Results from our risk assessment indicate that, for the source category MIR of 2,000-in-1 million, approximately 15 percent is from equipment leak emissions of ethylene oxide. We note that the risk at a second facility is also greater than 100-in-1 million (*i.e.*, 300-in-1 million), with approximately 95 percent of the risk from equipment leak emissions of ethylene oxide.

LDAR and equipment leak control technologies. To address the risk from ethylene oxide emissions from equipment leaks, we performed a review of available measures for reducing ethylene oxide emissions from components that were most likely to be in ethylene oxide service, which included pumps in light liquid service at batch processes, connectors in gas and vapor service or light liquid service, and valves in gas or light liquid service. This review relied on information from a 2011 analysis that identified developments for equipment leaks at chemical manufacturing facilities and petroleum refineries,[32] herein referred to as the 2011 equipment leaks analysis. We identified several developments in LDAR practices and processes, summarized here.

For light liquid pumps, we identified two options: (1) lower the leak definition for batch pumps from 10,000 ppm to 1,000 ppm with monthly monitoring or (2) require the use of leakless pumps (*i.e.*, canned pumps, magnetic drive pumps, diaphragm pumps, pumps with tandem mechanical seals, pumps with double mechanical seals) with annual monitoring with a leak definition of any reading above background concentration levels.

For gas/vapor and light liquid connectors, we identified two options: (1) require connector monitoring at a leak definition of 500 ppm with annual monitoring or (2) require connector monitoring at a leak definition of 100 ppm with monthly monitoring.

For gas/vapor and light liquid valves, we identified two options: (1) require leakless valves (*i.e.*, bellows seal gate and bellows seal globe valves with bellows welded to both the bonnet and stem) with annual monitoring with a leak definition of any reading above background concentration levels or (2) lower the leak definition from 500 ppm to any reading above background concentration levels with monthly monitoring.

Additional information on all evaluated control options is found in the memorandum titled *Analysis of Control Options for Equipment Leaks at Processes that use Ethylene Oxide Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, in the docket for this rulemaking.

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[32] Hancy. 2011. Memorandum from Hancy, C., RTI International to Howard, J., EPA/OAQPS. *Analysis of Emissions Reduction Techniques for Equipment Leaks*. December 21, 2011. EPA Docket ID No. EPA-HQ-OAR-2010-0869.

Regulatory options. For process vents, storage tanks, and equipment leaks, we considered the control options described above for reducing risk from the source category. To reduce risk in the source category, we propose to require control of ethylene oxide for (1) process vents, (2) storage tanks, and (3) equipment "in ethylene oxide service" (defined in this proposal).[33] For process vents and storage tanks, this control requirement is regardless of whether the equipment is classified as Group 1 or Group 2 for HAP.

In all cases, we are proposing that if information exists that suggests ethylene oxide could be present in these processes, then the process equipment is considered to be in ethylene oxide service unless sampling and analysis is performed to demonstrate that the process equipment does not meet the definition of being in ethylene oxide service. We are proposing sampling and analysis procedures at 40 CFR 63.2492. Examples of information that could suggest ethylene oxide is present in a process stream include calculations based on safety data sheets, material balances, process stoichiometry, or previous test results provided the results are still relevant to the current operating conditions.

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[33] For process vents, we are proposing to define "in ethylene oxide service" to mean that each batch and continuous process vent in a process that, when uncontrolled, contains a concentration of greater than or equal to 1 ppmv undiluted ethylene oxide, and when combined, the sum of all these process vents would emit uncontrolled, undiluted ethylene oxide emissions greater than or equal to 5 pounds per year (2.27 kilograms per year). For storage tanks of any capacity and vapor pressure, we are proposing to define "in ethylene oxide service" to mean that the concentration of ethylene oxide of the stored liquid is greater than or equal to 1 parts per millions by weight (ppmw). We are proposing that the exemptions for "vessels storing organic liquids that contain HAP only as impurities" and "pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere" listed in the definition of "storage tank" at 40 CFR 63.2550(i) do not apply for storage tanks in ethylene oxide service. For the ethylene oxide equipment leak provisions, we are proposing to define "in ethylene oxide service" to mean any equipment that contains or contacts a fluid (liquid or gas) that is at least 0.1 percent by weight of ethylene oxide.

Based on the proposed applicability thresholds, we expect that eight facilities will be affected by the proposed ethylene oxide-specific standards. Five of these eight facilities will be subject to the process vent and/or storage tank provisions; specifically, three facilities have process vents in ethylene oxide service and three facilities have storage tanks in ethylene oxide service. All eight facilities are expected to be subject to the equipment leak provisions.

To reduce risks from process vents in ethylene oxide service, we are proposing to either reduce emissions of ethylene oxide by (1) venting emissions through a closed-vent system to a control device that reduces ethylene oxide by greater than or equal to 99.9 percent by weight, or to a concentration less than 1 ppmv for each process vent, or to less than 5 pounds per year for all combined process vents; or (2) venting emissions through a closed-vent system to a flare meeting the proposed flare operating requirements discussed in section IV.A.1 of this preamble. To reduce risks from storage tanks in ethylene oxide service, we are proposing to either reduce emissions of ethylene oxide by (1) venting emissions through a closed-vent system to a control device that reduces ethylene oxide by greater than or equal to 99.9 percent by weight or to a concentration less than 1 ppmv for each storage tank vent; or (2) venting emissions through a closed-vent system to a flare meeting the proposed flare operating requirements discussed in section IV.A.1 of this preamble. Additionally, we propose removing the option to allow use of a design evaluation in lieu of performance testing to demonstrate compliance for both process vents and storage tanks in ethylene oxide service to ensure that the required level of control is achieved. We are also proposing that after promulgation of the rule, owners or operators that choose to control emissions with a non-flare control device conduct an initial performance test according to 40 CFR 63.997 and 40 CFR 63.2450(g) on each existing control device in ethylene oxide service and on each newly installed control device in ethylene oxide service to verify performance at the required level of control. Subsequently, we propose that owners or operators conduct periodic performance testing on non-flare control devices in ethylene oxide service every 5 years.

As previously stated, we are aware that MON facilities with ethylene oxide emissions from process vents and storage tanks commonly use scrubbers to control emissions. Based on our knowledge of these scrubbers, there is a difference in how these scrubbers operate in order to achieve high control efficiencies versus how a normal wet scrubber operates. The higher removal efficiency of ethylene oxide in these scrubbers is based on the absorption of ethylene oxide into the scrubber water and then conversion of ethylene oxide to ethylene glycol. This conversion is dependent on several factors – maintaining an acid environment to catalyze the reaction and having enough residence time in the scrubber for the reaction to occur. We are proposing continuous monitoring of operating parameters for these scrubbers to ensure that the factors needed for the reaction to occur are met, namely liquid-to-gas ratio, pressure drop across the scrubber, liquid feed pressure, liquid temperature, and pH. However, we are aware that several other parameters may also be important to monitor, such as maximum liquid flow rate, tank levels for the reactant and solution feed tanks, and ethylene glycol content of the tanks. We are requesting comment on the operating parameters we have proposed for these scrubbers and whether these additional operating parameters are necessary, and if so, how these parameter limits should be set and at what frequency they should be monitored.

To reduce risks from equipment leaks, we identified two options that we are co-proposing for controlling emissions from MON equipment in ethylene oxide service, referred to here as equipment leak Control Option 1 and equipment leak Control Option 2. These two co-proposed options, presented in Table 6 and summarized here, provide a level of control beyond what is being proposed in the technology review for all MON equipment in HAP service.

In equipment leak co-proposed Control Option 1, we are proposing that all light liquid pumps in ethylene oxide service be monitored monthly at a leak definition of 1,000 ppm, and when a leak is detected, it be repaired as soon as practicable, but not later than 15 calendar days after it is detected. Additionally, under co-proposed Control Option 1, we are proposing that the leak repair exemption available for pumps at 40 CFR 63.1026(b)(3), 40 CFR 63.163(c)(3), and 40 CFR 65.107(b)(3) would not apply to equipment in ethylene oxide service. Also, as part of co-proposed Control Option 1, we are proposing that all gas/vapor and light liquid connectors in ethylene oxide service be monitored annually at a leak definition of 500 ppm, and when a leak is detected, it be repaired as soon as practicable, but not later than 15 calendar days after it is detected.

As an alternative to Control Option 1, we are co-proposing equipment leak Control Option 2. Under co-proposed Control Option 2, we are proposing that more stringent equipment leak standards would apply to the facilities with a MIR greater than 100-in-1 million after imposition of the proposed standards for process vents and storage tanks, as determined by this risk analysis (*i.e.*, Lanxess Corporation and Huntsman Performance), and detailed in Appendix 10 of the document titled *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking. For these two facilities, pumps in ethylene oxide service would be required to be leakless (*i.e.*, have zero emissions) and monitored annually to verify there are no emissions. Additionally, valves in ethylene oxide service would be required to either be leakless and monitored annually, or not be leakless and be monitored quarterly. For pumps and valves in ethylene oxide service, equipment is considered leaking if an instrument reading above background is found. Furthermore, at the two higher risk facilities with a MIR greater than 100-in-1 million, connectors in ethylene oxide service would be monitored monthly at a leak definition of 100 ppm. We are proposing that when a leak is detected, it be repaired as soon as practicable, but not later than 15 calendar days after it is detected, and a first attempt at repair be made no later than 5 calendar days after the leak is detected. As part of co-proposed Control Option 2, all other facilities with MON equipment in ethylene oxide service would be subject to the standards previously described in equipment leak co-proposed Control Option 1.

We solicit comment on each of the proposed requirements for process vents, storage tanks, and equipment in ethylene oxide service.

Table 6. Summary of Equipment Leak Co-Proposed Control Options for MON Facilities Emitting Ethylene Oxide.

Equipment Leak Control Option	**Applicability**		**Control Option Description**
1	MON equipment in ethylene oxide service	Light Liquid Pumps	Require leak definition of 1,000 ppm, monthly monitoring.
		Gas/Vapor and Light Liquid Connectors	Require leak definition of 500 ppm, annual monitoring.
2	MON equipment in ethylene oxide service at the two facilities with cancer risks ≥ 100-in-1 million (specifically, Lanxess Corporation and Huntsman Performance)	Light Liquid Pumps	Require pumps to have zero emissions (*e.g.*, leakless), annual monitoring.
		Gas/Vapor and Light Liquid Connectors	Require leak definition of 100 ppm, monthly monitoring.
		Gas/Vapor and Light Liquid Valves	Require valves to have zero emissions (*e.g.*, leakless) with annual monitoring or non-leakless with quarterly monitoring.
	MON equipment in ethylene oxide service at	Light Liquid Pumps	Require leak definition of 1,000 ppm, monthly monitoring.

	all other facilities (excluding Lanxess Corporation and Huntsman Performance)	Gas/Vapor and Light Liquid Connectors	Require leak definition of 500 ppm, annual monitoring.

Finally, in considering possible control options for equipment leaks, it is important to understand the uncertainties related to the modeled ethylene oxide equipment leak emissions. For Lanxess Corporation, the modeled equipment leak emissions were our best estimate, using component counts from the facility's title V permit application and emission factors, and were not based on measured emissions. Notably, this calculated emission estimate was higher than what was reported to the 2014 NEI and the 2014 Toxics Release Inventory. We used the highest emission estimate in our model run to be conservatively health protective but recognize that this may result in an overestimation of risk. For Huntsman Performance, the modeled equipment leak emissions were also our best estimate, using calculated emissions that were reported to the 2014 NEI, and were also not based on measured emissions. Although Huntsman Performance did report their equipment leak emissions, we do not know which components (*e.g.*, pumps, valves, connectors, etc.) were responsible for these emissions, which introduces uncertainty regarding the effect that the proposed equipment leak controls would have on reducing equipment leak emissions. At Huntsman Performance, we are also aware that the ethylene oxide equipment leak emissions are not entirely from MON processes; however, we did not have enough information to distinguish between emissions attributed to MON processes versus other processes (*e.g.*, 40 CFR part 63, subparts H and PPP). Therefore, the risk for this facility is likely biased high due to our inability to distinguish between co-located emissions. For both Lanxess Corporation and Huntsman Performance, because the ethylene oxide equipment leak emissions were derived from engineering calculations and are not based on measured values, there is considerable uncertainty regarding the appropriateness of the proposed LDAR and control provisions for light liquid pumps, gas/vapor and light liquid connectors, and gas/vapor and light liquid valves. As such, modeled risk reductions may not accurately reflect the actual effects of implementing the proposed controls. Furthermore, we have limited information regarding the use of leakless valves on streams that are in ethylene oxide service and, therefore, are soliciting comment on the applicability of these valves for MON equipment in ethylene oxide service.

3. Determination of Risk Acceptability

As noted in sections II.A and III.A of this preamble and in the Benzene NESHAP, the EPA sets standards under CAA section 112(f)(2) using a two-step approach, with an analytical first step to determine whether risks are acceptable. This determination "considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR) of approximately 1 in 10 thousand" (54 FR 38045, September 14, 1989). A MIR of 1-in-10,000 (*i.e.*, 100-in-1 million) alone does not constitute a bright line for making a risk acceptability determination. The level of the MIR is only one factor weighed in determining acceptability of risk. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112 and are weighed with other health risk measures and information, including risk estimation uncertainty, in making an overall judgment on acceptability.

In some cases, the health risk measures and information taken together may provide a more realistic description of the magnitude of risk in the exposed population than that provided by the MIR alone. As such, we considered the results of the risk assessment (including the risk estimation uncertainty) and evaluated available control technologies and other measures (including the controls reviewed under the technology review) that could be applied to this source category to reduce the risks due to emissions of ethylene oxide from process vents, storage tanks, and equipment leaks without considering costs or technological feasibility. Additionally, as described previously in section IV.C.2, we are co-proposing two options for control of ethylene oxide emissions from equipment leaks (*e.g.*, co-proposed Control Options 1 and 2). Therefore, we present the risk impacts using health risk measures and information, including the MIR, cancer incidence, population exposed to cancer risks greater than 100-in-1 million, and associated uncertainty in emissions estimates after incremental application of controls for storage tanks, process vents, and either co-proposed equipment leak Control Option 1 or 2, in Table 7 and in the discussion below.

Table 7. Nationwide Risk Impacts After Implementation of Proposed Controls.

Control Scenario	**MIR (x-in-1 million)**	**Population**		**Cancer Incidence**	**Uncertainty**
		≥ 1-in-1 Million	**> 100-in-1 Million**		
Pre-Control Baseline	2,000 (Lanxess) 300 (Huntsman)	2,900,000	18,000	0.4	--
+ Storage Tank Controls	500 (Lanxess) 300 (Huntsman)	2,600,000	1,500	0.1	The effect of process vent and storage tank controls on emissions is well understood and generally certain.
+ Process Vent Controls	400 (Lanxess) 300 (Huntsman)	2,400,000	780	0.1	
Either, + Equipment Leak Control Option 1	200 (Lanxess) 300 (Huntsman)	2,300,000	300	0.1	Fugitive emissions estimates are uncertain and based on engineering calculations. Therefore, there is uncertainty regarding the relevance of the proposed equipment leak controls (Lanxess, Huntsman). Modeled fugitive emissions may be subject to other NESHAP which likely results in an overestimation of risk (Huntsman).
Or, + Equipment Leak Control Option 2	100 (Lanxess) 200 (Huntsman)	2,100,000	30	0.1	

Although the post-control risks are greater than 100-in-1 million (*i.e.*, 200 to 300-in-1 million), due to the inherent health protective nature of our risk assessment methods and the uncertainties in this assessment, we believe that this risk assessment is more likely to overestimate rather than underestimate the risks. A brief discussion of the health protective aspects of the assessment, including uncertainties in the RTR emissions dataset, dispersion modeling, inhalation exposure estimates, and dose-response relationships was covered in section III.C.8. A more thorough discussion of these uncertainties is included in the *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this action.

We note that the modeled risks due to emissions of ethylene oxide are sensitive to the URE applied. In this assessment, the modeled risks are largely driven by use of an EPA URE for ethylene oxide that was updated in December 2016 (*i.e.*, 5 x 10^{-3} per ug/m^3) on the basis of new human data.[34,35] This updated URE is about 60 times greater than the value used previously by EPA in its risk assessments (*i.e.*, California EPA URE of 8.8 x 10^{-5} per ug/m^3, based on animal data).

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[34] U.S. EPA. *Evaluation of the Inhalation Carcinogenicity of Ethylene Oxide (CASRN 75-21-8) In Support of Summary Information on the Integrated Risk Information System (IRIS)*. December 2016. EPA/635/R-16/350Fa. *https://cfpub.epa.gov/ncea/iris/iris_documents/documents/toxreviews/1025tr.pdf*.

[35] SAB. (2015). *Science Advisory Board Review of the EPA's Evaluation of the Inhalation Carcinogenicity of Ethylene Oxide*: Revised external review draft - August 2014 [EPA Report]. (EPA-SAB-15-012). Washington, DC: U.S. EPA, SAB. *https://yosemite.epa.gov/sab/sabproduct.nsf/fedrgstr_activites/BD2B2DB4F84146A585257E9A0070E655/$File/EPA-SAB-15-012+unsigned.pdf.*

The UREs we use in our risk assessments generally provide an upper bound estimate of risk[36] to be health protective in light of dose-response modeling uncertainties. As noted above and in Section III.C.8.d, there are uncertainties inherent in all risk assessments, including uncertainties in the development of dose-response values. Consistent with EPA SAB recommendations,[37] where a HAP is a risk driver, as is the case with ethylene oxide for this risk assessment, we examine the underlying technical information, including sources of risk estimation uncertainties. To better characterize the risks, we reviewed EPA's 2016 ethylene oxide dose-response assessment and the uncertainties in the dose-response relationships.

For the EPA's 2016 ethylene oxide URE, two aspects of uncertainty stand out as potentially contributing to the conservative (*i.e.*, health protective) nature of the final 2016 URE. This is documented in the memorandum titled *Sensitivity of Ethylene Oxide Risk Estimates to Dose-Response Model Selection*, which is available in the docket for this rulemaking, and as discussed further below.

First, the updated IRIS URE for ethylene oxide is based on the upper confidence limit on the slope of the dose response curve. However, according to the 2005 *Guidelines for Carcinogen Risk Assessment*, when human data are available, it is reasonable to consider the central estimate rather than upper confidence limit for a URE.[38] In the case of ethylene oxide, we do have human health data and, therefore, it is reasonable to consider the central estimate. The central estimate

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[36] IRIS glossary (*https://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=IRIS%20Glossary*).

[37] Recommendations of the SAB Risk and Technology Review Methods Panel are provided in their report, which is available at: *https://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf*.

[38] *Guidelines for Carcinogen Risk Assessment. Risk Assessment Forum*. U.S. EPA. Washington, DC. March 2005.

of the URE for ethylene oxide is 3 times lower than the upper confidence limit, as documented in the memorandum titled *Sensitivity of Ethylene Oxide Risk Estimates to Dose-Response Model Selection*, which is available in the docket for this rulemaking.

Second, we note that several dose-response models were considered during the 2016 IRIS assessment for two types of cancer: breast cancer and lymphoid cancer. Considering multiple models ensures the selected model provides the best fit to the exposure data and helps quantify and characterize model and statistical uncertainty. The choice of model also has significant implications for the URE, particularly at the low end of the dose-response range.

With regard to lymphoid cancer, the selected model provided the best fit and satisfied all SAB recommendations.[39] However, there were statistical challenges associated with modeling the data. Therefore, in developing the dose-response value, the EPA considered other lymphoid cancer models that provided reasonably good fits to the exposure data and met some, but not all, of the SAB modeling criteria recommendations. For purposes of characterizing the uncertainty around the final 2016 IRIS URE, it is useful to consider the extent to which choosing an alternative lymphoid cancer model would have affected the value. In fact, one of the alternative lymphoid cancer models evaluated by the EPA would result in a URE 2 to 3 times lower than the IRIS URE, as documented in the memorandum titled *Sensitivity of Ethylene Oxide Risk Estimates to Dose-Response Model Selection*, which is available in the docket for this

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[39] SAB advice on modeling criteria included (1) the recommendation to prioritize models with good fits in the low exposure range (*e.g.*, spline models), (2) preference for using continuous individual-level exposure data over categorical results, and (3) selecting models that have a dose-response shape that is both biologically plausible and consistent with observed data.

rulemaking.[40] For breast cancer, there was a high level of statistical certainty with the model selected, and, therefore, we did not include alternative models in this uncertainty discussion.

The EPA concludes that these uncertainties, noted in the 2016 IRIS assessment, provide important context for interpreting whether risks remaining post-control can be considered acceptable. In particular, we note that the central estimate compared to the upper confidence limit could result in a URE 3 times lower than the IRIS URE and an alternative dose-response model for lymphoid cancer could result in a URE 2-3 times lower. While EPA followed SAB recommendations regarding lymphoid model choice, we acknowledge the uncertainty inherent in this model selection, which is important for interpreting risk results. In fact, both the central estimate and an alternative dose-response model combined could result in a URE 5 times lower. This would reduce potential post-control risks to 60- to 100-in-1 million (from 200- to 300-in-1 million).

The updated URE was used in EPA's 2014 National Air Toxics Assessment (NATA). In September 2018, the ACC submitted a Request for Correction under the Information Quality Act asking that the "NATA risk estimates for EO[41] should be withdrawn and corrected to reflect scientifically-supportable risk values".

Given the ACC's Request for Correction, in the HCl Production RTR proposed rule, the EPA requested comment on the use of the updated ethylene oxide URE for regulatory purposes (84 FR 1584; February 4, 2019). The comment period for the proposed rule closed on April 26, 2019, and the Agency received a number of comments on the updated ethylene oxide URE and

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[40] The memorandum notes that higher estimates of risk were obtained using other models that statistically fit the data. There were limitations with these models and they were not considered in the uncertainty analysis. However, a comprehensive analysis of alternative models would likely include some risk estimates higher than the IRIS unit risk.

[41] In this instance, "EO" refers to "ethylene oxide."

its use for regulatory purposes. Those comments are included in Docket ID No. EPA-HQ-OAR-2018-0417, and the EPA is incorporating those comments into the docket for this rulemaking. Commenters provided comments both in support of and opposed to the 2016 updated URE for ethylene oxide and its use for regulatory purposes. One commenter noted that the application of the URE would have wide-ranging implications on regulatory decision making. Commenters supporting the use of the 2016 updated URE noted that the IRIS assessment for ethylene oxide used the best available science, underwent review by Agency and non-Agency experts, as well as public review, and was published in a peer-reviewed journal. Commenters opposing the use of the 2016 updated URE noted concerns with the model and variables used to estimate pre-1978 worker exposure estimates (and suggested an alternative model and alternative pre-1978 worker exposure estimates that would reflect higher pre-1978 exposures and affect the final URE), and another commenter indicated that they are developing their own cancer dose-response value for ethylene oxide.

In June 2019, the Texas Commission on Environmental Quality (TCEQ) issued a draft document for public review ("Ethylene Oxide Carcinogenic Dose-Response Assessment"), which concluded that "USEPA's ethylene oxide inhalation URF[42] is not adequately supported by scientific data" and instead proposed a unit risk factor (URF) of 1.4 x 10^{-6} per ug/m^3. Specifically, TCEQ disagreed with the EPA's model selection as the basis for deriving a URE. TCEQ highlighted uncertainties in the URE arising from what it considered to be errors in the assumptions and calculations used to determine the best model fit of the data. TCEQ's concerns

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[42] In this instance, "URF" is intended to be functionally equivalent to the EPA's unit risk estimate for ethylene oxide.

with the EPA’s URE derivation have not been peer reviewed and the public comment period closed on September 26, 2019.

Because of the robustness of the comments received and their relevance to this rulemaking, the Agency will consider those comments in the final rule for the Miscellaneous Organic Chemical Manufacturing source category. In this proposed rule, we are requesting any additional comments on the use of the 2016 updated URE for ethylene oxide for regulatory purposes beyond those already received for the HCl Production RTR proposed rule (84 FR 1584-1597; February 4, 2019), as well as comments on the use of an alternative URE for ethylene oxide in the final rule for this source category. The EPA believes it is reasonable to assume that, allowing for the uncertainties in the URE, estimated risks for the Miscellaneous Organic Chemical Manufacturing source category could be lower, even potentially lower than the 100-in-1 million benchmark.

It is also important to note that there is considerable uncertainty regarding the estimated equipment leak emissions that are responsible for the remaining modeled risk. As described previously in section IV.C.2 and summarized here, the estimated ethylene oxide equipment leak emissions are based on engineering calculations, not actual measured emissions, and, therefore, it is uncertain whether the proposed controls are appropriate for the actual source(s) of fugitive emissions at these facilities. Furthermore, at Lanxess Corporation, a conservatively high equipment leak emissions estimate was used, and at Huntsman Performance, equipment leak emissions are also thought to be overestimated due to knowledge that the modeled emissions are not entirely from MON equipment. Due to these emissions uncertainties, the post-control MIRs of 300-in-1 million at Huntsman Performance and 200-in-1 million at Lanxess Corporation are likely biased high; the actual MIRs would be expected to be lower at both facilities. Given that the number of people estimated to have a cancer risk greater than 100-in-1 million would be reduced from 18,000 to 300, the incidence would be reduced from 0.4 to 0.1, and considering that the MIR is expected to be lower than 300-in-1 million, we propose that, after application of the ethylene oxide-specific controls for process vents, storage tanks, and equipment leak co-proposed Control Option 1, risks would be acceptable.

Alternatively, additional equipment leak controls (*e.g.*, beyond equipment leak co-proposed Control Option 1) could be applied to the two highest risk facilities to further reduce risks. After application of the ethylene oxide-specific controls for process vents, storage tanks, and equipment leak co-proposed Control Option 2, ethylene oxide emissions would be reduced by 94-percent for the source category, the estimated MIR would be reduced from 2,000-in-1 million to 200-in-1 million at Huntsman Performance and 100-in-1 million at Lanxess Corporation, the number of people estimated to have a cancer risk greater than 100-in-1 million would be reduced from 18,000 to 30, and the incidence would be reduced from 0.4 to 0.1.

Finally, we note that the proposed control measures provide for a significant risk reduction. Application of the ethylene oxide-specific controls for process vents and storage tanks would reduce ethylene oxide emissions by an estimated 89 percent for the source category, and the estimated MIR would be reduced from 2,000-in-1 million to 400-in-1 million at Lanxess Corporation, and the next highest estimated MIR would be 300-in-1 million at Huntsman Performance. In both cases, the remaining risk is primarily from equipment leak emissions of ethylene oxide. Subsequent application of equipment leak co-proposed Control Option 1 would further reduce ethylene oxide emissions by 4 percent, for a total estimated 93-percent reduction in ethylene oxide emissions for the source category, with the MIR at Lanxess Corporation being further reduced to 200-in-1 million and the MIR at Huntsman Performance remaining at 300-in-1 million.

In summary, after implementation of the proposed controls for process vents and storage tanks at MON facilities emitting ethylene oxide, as well as implementation of either of the co-proposed control options for equipment leaks, and considering all of the health risk information and factors discussed above, including the uncertainties regarding the equipment leak emissions, the uncertainties inherent in all risk assessments (*i.e.*, the emissions dataset, dispersion modeling, exposure estimates, and dose-response relationships) and the EPA's use of the updated URE for ethylene oxide (which is developed to be health protective but, given uncertainties in the value, could be as much as 5 times lower), the EPA proposes that the resulting risks would be acceptable for this source category. We are soliciting comment on which of the two ethylene oxide equipment leak co-proposed control options should be implemented in the final rulemaking in order to ensure that risks from the source category are acceptable.

4. Ample Margin of Safety Analysis

The second step in the residual risk decision framework is determination of whether the emission standards proposed to achieve an acceptable risk level would protect public health with an ample margin of safety, or whether more stringent emission standards would be required. In making this determination, we considered the estimate of health risk and other health information, along with additional factors relating to the appropriate level of control, including costs and economic impacts of controls, technological feasibility, uncertainties, and other relevant factors, consistent with the approach of the 1989 Benzene NESHAP. Table 8 of this preamble presents the summary of costs and ethylene oxide emission reductions we estimated for the proposed control options. For details on the assumptions and methodologies used in the costs and impacts analyses, see the technical memoranda titled *Analysis of Control Options for Storage Tanks and Process Vents Emitting Ethylene Oxide Located in the Miscellaneous Organic Chemical Manufacturing Source Category* and *Analysis of Control Options for Equipment Leaks at Processes that use Ethylene Oxide Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, which are available in the docket for this rulemaking.

Table 8. Nationwide Emission Reductions and Cost Impacts of Control Options Considered for Process Vents, Storage Tanks, and Equipment in Ethylene Oxide (EtO) Service[1]

Control Option	Total Capital Investment ($)	Total Annualized Costs ($/yr)	EtO Emission Reductions (tpy)[2]	Cost Effectiveness ($/ton EtO)[3]
A-Process Vent Controls	2,180,000	914,000	1.2	783,000
B-Storage Tank Controls	466,000	796,000	8.6	93,100
C-Equipment Leak co-proposed Control Option 1	76,000	48,000	3.6	13,200
Total (A+B+C)	2,720,000	1,760,000	13.3	132,000
D-Equipment Leak co-proposed Control Option 2	673,000	148,000	4.5	33,000
Total (A+B+D)	3,320,000	1,860,000	14.2	131,000

[1] Costs are calculated for the year 2016 and assume that a scrubber was installed as the control device.
[2] Reductions shown are based on model plant emission estimates, not on emissions that were modeled in the risk assessment.
[3] Cost effectiveness presented is without recovery credits, which represent the savings in product that would not be lost from equipment leaks.

For the ample margin of safety analysis, we evaluated the cost and feasibility of available control technologies that could be applied in this source category to further reduce the risks (or potential risks) due to emissions of HAP, considering all of the health risks and other health information considered in the risk acceptability determination described above. We note that we did not identify any other controls for ethylene oxide emission sources so we are considering all the available options to reduce risk.

In the case that we apply the process vent, storage tank, and equipment leak co-proposed Control Option 1 in the first step (*i.e.*, determination of acceptable risk), we considered this option as well as three additional options in the second step to establish an ample margin of safety. For the three additional options, first, we considered implementing equipment leak co-proposed Control Option 2, which would require that the two facilities with cancer risks greater than 100-in-1 million comply with more stringent standards. Second, we considered expanding the applicability of equipment leak co-proposed Control Option 2 so that the more stringent controls would apply to all facilities with equipment in ethylene oxide service, regardless of cancer risks. Third, we considered the options identified in the technology review (*i.e.*, controls to equipment leaks for MON equipment not in ethylene oxide service and heat exchange systems). The ample margin of safety analysis for these options is discussed below.

First, in the case of implementing the ethylene oxide equipment leak co-proposed Control Option 2, we compared the costs of co-proposed Control Option 1 to co-proposed Control Option 2 ($76,000 vs. $673,000 total capital investment; $48,000 vs. $148,000 total annualized cost). From the ethylene oxide equipment leak co-proposed Option 1 to Option 2, the MIR would be reduced from 300-in-1 million to 200-in-1 million, the population exposed to cancer risks ≥ 1-in-1 million would be reduced from 2,300,000 to 2,100,000, and the incidence would remain unchanged at 0.1.

Second, in the case that we expand the applicability of equipment leak co-proposed Control Option 2 so that the more stringent controls would apply to all facilities with equipment in ethylene oxide service, costs were also found to be considerably higher compared to ethylene oxide equipment leak co-proposed Control Option 1 ($76,000 vs. $1,600,000 total capital investment; $48,000 vs. $300,000 total annualized cost). The estimated ethylene oxide emissions reductions are 5.8 tons per year with a cost effectiveness of $51,000 per ton of ethylene oxide. The population exposed to cancer risks greater than or equal to 1-in-1 million would be reduced by 14,000, but there are no additional reductions in the MIR or incidence when expanding these more stringent standards to apply to all facilities with equipment in ethylene oxide service. We solicit comment on whether we should apply the requirements of equipment leak co-proposed Control Option 2 that are specific to the two highest risk facilities more broadly, so that they apply to all facilities with equipment in ethylene oxide service.

Third, we considered control options identified in the technology review (section IV.D of this preamble), which apply to all HAP and are not specific to ethylene oxide. These options include controls for (1) equipment leaks for MON equipment not in ethylene oxide service (options 1 through 4), and (2) heat exchangers. For controls for equipment leaks for MON equipment not in ethylene oxide service (option 1, described in section IV.D.1 of this preamble) and heat exchangers, while cost-effective, neither lowered the source category MIR, incidence, or population exposed to cancer risks ≥ 1-in-1 million. For equipment leak controls for MON equipment not in ethylene oxide service, options 2, 3, and 4 (described in section IV.D.1 of this preamble) were not cost-effective and did not reduce the source category MIR, incidence, or population exposed to risks ≥ 1-in-1 million, with the exception of the equipment leak option 3 controls which lowered the population exposed to cancer risks ≥ 1-in-1 million by approximately 250,000 people.

Based on our ample margin of safety analysis, including all health information and the associated cost and feasibility as discussed above, we propose that the requirements that we are proposing to achieve acceptable risks would also provide an ample margin of safety to protect public health. We are soliciting comment on which of the available control options should be applied in order to provide an ample margin of safety to protect public health.

5. Adverse Environmental Effects

We do not expect there to be an adverse environmental effect as a result of HAP emissions from this source category, and we are proposing that it is not necessary to set a more stringent standard to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

D. What are the results and proposed decisions based on our technology review?

Sources of HAP emissions regulated by the MON are process vents, storage tanks, transfer racks, equipment leaks, wastewater streams, and heat exchange systems. MON processes can either be batch or continuous operations. Batch operations mean a non-continuous operation involving intermittent or discontinuous feed into equipment and, in general, involve the emptying of the equipment after the operation ceases and prior to beginning a new operation. To inform our technology reviews for these emissions sources, we reviewed the EPA's Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate (RACT/BACT/LAER) clearinghouse and regulatory development efforts published after the MON for similar sources. (See the memorandum titled *Review of the RACT/BACT/LAER Clearinghouse Database for the Miscellaneous Organic Chemical Manufacturing Source Category*, which is available in the docket for this rulemaking.) After reviewing information from the afore-mentioned sources, we have identified certain developments in practices, processes, or control technologies to reduce emissions from some of the sources of HAP emissions regulated by the MON. We then evaluated the impacts of applying these developments to the Miscellaneous Organic Chemical Manufacturing source category and are proposing revisions to the MON for equipment leaks and heat exchange systems pursuant to CAA section 112(d)(6).

1. Equipment Leaks

Emissions of HAP (*e.g.*, beyond ethylene oxide) from equipment leaks occur in the form of gases or liquids that escape to the atmosphere through many types of connection points (*e.g.*, threaded fittings) or through the moving parts of certain types of process equipment during normal operation. Equipment regulated by the MON includes pumps, compressors, agitators, PRDs, sampling collection systems, open-ended valves or lines, valves, connectors, and instrumentation systems that contain or contact material that is 5 percent by weight or more of organic HAP, operate 300 hours per year or more, and are not in vacuum service.

Depending on the type of equipment, the equipment leak requirements of the MON provide the option of meeting the control requirements of 40 CFR part 63, subparts H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks), or UU (National Emission Standards for Equipment Leaks - Control Level 2 Standards), or 40 CFR part 65, subpart F (the Consolidated Air Rule for Equipment Leaks) for existing MON processes and 40 CFR part 63, subpart UU, or 40 CFR part 65, subpart F, for new MON processes. The equipment leak requirements vary by equipment (component) type but require LDAR using monitoring with EPA Method 21 of appendix A–7 to 40 CFR part 60 at certain frequencies (*e.g.*, monthly, quarterly, every 2 quarters, annually) and leak definitions (*e.g.*, 500 ppm, 1,000 ppm, 10,000 ppm) if the component is in either gas and vapor service or in light liquid service. The LDAR requirements for components in heavy liquid service require sensory monitoring and the use of EPA Method 21 monitoring if a leak is identified.

The practices, processes, and control technologies considered during MACT development for equipment leaks at MON facilities included LDAR. To identify developments for the technology review, we reviewed the control options that were considered for the proposed MON in 2003. As mentioned previously in section IV.C.2 of this preamble, the EPA conducted a general analysis in the 2011 equipment leaks study[43] to identify the latest developments in practices, processes, and control technologies for equipment leaks at chemical manufacturing facilities and petroleum refineries and estimated the impacts of applying those practices, processes, and control technologies to model facilities. We also used this 2011 equipment leaks analysis as a reference for conducting the technology review for equipment leaks at MON facilities. Additionally, we evaluated other federal regulations (*i.e.*, the finalized Petroleum Refinery Sector MACT,[44] NSPS subpart VVa,[45] and the Hazardous Organic NESHAP[46]) and state regulations (*e.g.*, the Texas fugitive emissions rules applicable to petrochemical processes[47,48]) as part of this review.

Our technology review for equipment leaks of HAP (*e.g.*, beyond ethylene oxide) identified several developments in LDAR practices and processes: option 1, lowering the leak definition for pumps in light liquid service at existing batch processes from 10,000 ppm to 1,000 ppm with monthly monitoring; option 2, lowering the leak definition for pumps in light liquid service at existing batch processes from 10,000 ppm to 500 ppm and at existing continuous

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[43] Hancy. 2011. Memorandum from Hancy, C., RTI International to Howard, J., EPA/OAQPS. Analysis of Emissions Reduction Techniques for Equipment Leaks. December 21, 2011. EPA Docket ID No. EPA-HQ-OAR-2010-0869.

[44] 40 CFR part 63, subpart CC: National Emission Standards for Organic Hazardous Air Pollutants from Petroleum Refineries.

[45] 40 CFR part 60, subpart VVa: Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstructions, or Modification Commenced After November 7, 2006.

[46] 40 CFR part 63, subpart H: National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.

[47] 30 TAC 115, subchapter D, Division 3: Control of Air Pollution from Volatile Organic Compounds; Petroleum Refining, Natural Gas Processing, and Petrochemical Processes; Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas.

[48] 30 TAC 115, subchapter H, Division 3: Control of Air Pollution from Volatile Organic Compounds; Highly-Reactive Volatile Organic Compounds; Fugitive Emissions (referred to as the TX HRVOC rule).

processes from 1,000 ppm to 500 ppm with monthly monitoring; option 3, requiring monitoring of connectors in gas and vapor service or light liquid service at a leak definition of 500 ppm with monitoring every 8 years; and option 4, lowering the leak definition for valves in gas and vapor service or light liquid service from 500 ppm to 100 ppm at both batch and continuous processes with quarterly monitoring. For all other component types, we did not identify developments in LDAR practices and processes.

Emissions reductions were estimated for the new developments that we identified using component counts and emission factors. The component counts were derived using data from the original MON rule, which included model component counts for 224 facilities, with 167 using batch processes, 57 using continuous processes, and three not having information. The batch facilities contained 1,049 batch processes, or an average of 6.3 per facility. The continuous facilities contained 88 continuous processes, or an average of 1.5 per facility. These values were scaled to estimate the number of batch and continuous processes for the current count of 201 facilities, resulting in 943 batch processes and 79 continuous processes nationwide. The number of nationwide processes was then multiplied by the component counts to estimate the nationwide component counts. Subsequently, baseline emissions and emissions after implementation of the controls for each component were calculated for continuous and batch processes using the nationwide component counts for continuous and batch processes derived from the 2003 MON analysis and emission factors and leak frequencies for the chemical manufacturing industry from the 2011 equipment leaks study.[49]

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[49] Hancy. 2011. Memorandum from Hancy, C., RTI International to Howard, J., EPA/OAQPS. *Analysis of Emissions Reduction Techniques for Equipment Leaks*. December 21, 2011. EPA Docket ID No. EPA-HQ-OAR-2010-0869.

Costs were then calculated for the baseline and control options, which reflect the cost to implement an LDAR program for each component. Note that the difference between the costs for the baseline and control options is the incremental cost to comply with the controls. Costs were calculated for the year 2016, and capital costs were annualized using a 5-percent interest rate. Furthermore, because the control options result in chemicals in process lines not leaking and, therefore, not being lost, we present costs both with and without this consideration. To estimate savings in chemicals not being emitted (*i.e.*, lost) due to the equipment leak control options, we applied a recovery credit of $900 per ton of VOC to the VOC emission reductions in the analyses. The $900 per ton recovery credit has historically been used by the EPA to represent the variety of chemicals that are used as reactants and produced at synthetic organic chemical manufacturing facilities,[50] however, we recognize that this value is from a 2007 analysis and may be outdated. Therefore, we solicit comment on the availability of more recent information to potentially update the value used in this analysis to estimate the recovery credits. The complete cost calculation methodology is documented in the memorandum, *Clean Air Act Section 112(d)(6) Technology Review for Equipment Leaks Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, which is available in the docket for this rulemaking.

We calculated the VOC and HAP cost effectiveness by dividing the incremental annual costs by the emissions reductions. Table 9 of this preamble presents the nationwide costs and impacts for the suite of equipment leak control options considered. See the technical memorandum titled *Clean Air Act Section 112(d)(6) Technology Review for Equipment Leaks*

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[50] U.S. EPA. 2007. Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry; Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries (*https://www.federalregister.gov/documents/2007/07/09/E7-13203/standards-of-performance-for-equipment-leaks-of-voc-in-the-synthetic-organic-chemicals-manufacturing*). EPA-HQ-OAR-2006-0699.

Located in the Miscellaneous Organic Chemical Manufacturing Source Category, which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in this analysis.

Based on the costs and emission reductions for each of the options, we determined that option 1 is a cost-effective strategy for further reducing HAP emissions from equipment leaks from MON equipment not in ethylene oxide service, and we are proposing at 40 CFR 63.2480(b)(6) and (c)(10) to revise the MON for equipment leaks to lower the leak definition for pumps in light liquid service at existing batch processes from 10,000 ppmv to 1,000 ppmv with monthly monitoring, pursuant to CAA section 112(d)(6). We are also clarifying at 40 CFR 63.2480(b)(7) and (c)(11) that you must initially monitor for leaks within 30 days after initial startup of the equipment. We solicit comment on these proposed revisions. Considering the high cost per ton estimate, we determined that equipment leak options 2, 3, and 4 are not cost effective for the entire source category; therefore, we are not proposing to revise the MON to reflect the requirements of these options pursuant to CAA section 112(d)(6).

Table 9. Nationwide Emissions Reduction and Cost Impacts of Control Options Considered for Equipment Leaks for MON Equipment Not in Ethylene Oxide Service[1]

Control Option	Total Capital Investment ($)	Total Annualized Costs w/o Credits[2] ($/yr)	Total Annualized Costs with Credits[2] ($/yr)	VOC Emission Reductions (tpy)	HAP Emission Reductions (tpy)	VOC Cost Effectiveness w/o Credits[2] ($/ton)	VOC Cost Effectiveness with Credits[2] ($/ton)	HAP Cost Effectiveness w/o Credits[2] ($/ton)	HAP Cost Effectiveness with Credits[2] ($/ton)
1	863,100	156,600	85,200	79.3	7.93	1,980	1,075	19,760	10,760
2	1,416,800	303,000	223,900	87.9	8.79	3,450	2,550	34,480	25,480
3	9,326,800	1,381,900	910,600	524	52.4	2,640	1,740	26,390	17,390
4	650,800	116,300	93,300	25.5	2.55	4,560	3,660	45,630	36,630

[1] Costs are calculated for the year 2016.

[2] Recovery credits represent the cost savings in chemicals not being emitted (*i.e.*, lost) due to the equipment leak options.

2. Heat Exchange Systems

Heat exchangers are devices or collections of devices used to transfer heat from process fluids to another process fluid (typically water) without intentional direct contact of the process fluid with the cooling fluid (*i.e.*, non-contact heat exchanger). There are two types of heat exchange systems: closed-loop recirculation systems and once-through systems. Closed-loop recirculation systems use a cooling tower to cool the heated water leaving the heat exchanger and then return the newly cooled water to the heat exchanger for reuse. Once-through systems typically use surface freshwater (*e.g.*, from rivers) as the influent cooling fluid to the heat exchangers, and the heated water leaving the heat exchangers is then discharged from the facility. At times, the internal tubing material of a heat exchanger can corrode or crack, allowing some process fluids to mix or become entrained with the cooling water. Pollutants in the process fluids may subsequently be released from the cooling water into the atmosphere when the water is exposed to air (*e.g.*, in a cooling tower for closed-loop systems or trenches/ponds in a once-through system). The term "heat exchange system" is not defined in the MON; therefore, we are proposing a definition for this term at 40 CFR 63.2550(i) that would apply only to the MON standards. We are proposing to define "heat exchange system" as a device or collection of devices used to transfer heat from process fluids to water without intentional direct contact of the process fluid with the water (*i.e.*, non-contact heat exchanger) and to transport and/or cool the water in a closed-loop recirculation system (cooling tower system) or a once-through system (*e.g.*, river or pond water). For closed-loop recirculation systems, the heat exchange system consists of a cooling tower, all miscellaneous organic chemical manufacturing process unit heat exchangers that are in organic HAP service, serviced by that cooling tower, and all water lines to and from these miscellaneous organic chemical manufacturing process unit heat exchangers. For once-through systems, the heat exchange system consists of all heat exchangers that are in organic HAP service, servicing an individual miscellaneous organic chemical manufacturing process unit and all water lines to and from these heat exchangers. Sample coolers or pump seal coolers are not considered heat exchangers for the purpose of this proposed definition and are not part of the heat exchange system. Intentional direct contact with process fluids results in the formation of a wastewater.

The MON includes an LDAR program for owners or operators of certain heat exchange systems which meets the requirements of 40 CFR 63.104 (National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry). The LDAR program specifies that heat exchange systems be monitored for leaks of process fluids into cooling water and that owners or operators take actions to repair detected leaks within 45 days. Owners or operators may delay the repair of leaks if they meet the applicable criteria in 40 CFR 63.104. The current MON, for heat exchange systems, allows the use of any method listed in 40 CFR part 136 for sampling cooling water for leaks for the HAP listed in Table 4 to 40 CFR part 63, subpart F, for recirculating systems and Table 9 to 40 CFR part 63, subpart G for once-through systems. A leak in the heat exchange system is detected if the exit mean concentration of HAP (or other representative substance) in the cooling water is at least 1 ppmw or 10 percent greater than (using a one-sided statistical procedure at the 0.05 level of significance) the entrance mean concentration of HAP (or other representative substance) in the cooling water. Furthermore, the MON allows owners or operators to monitor for leaks using a surrogate indicator of leaks (*e.g.*, ion-specific electrode monitoring, pH, conductivity), provided that certain criteria in 40 CFR 63.104(c) are met. The MON initially requires 6 months of monthly monitoring for existing heat exchange systems. Thereafter, the frequency can be reduced to quarterly. The leak monitoring frequencies are the same whether water sampling and analysis or surrogate monitoring is used to identify leaks.

Our technology review identified one development in LDAR practices and processes for heat exchange systems, the use of the Modified El Paso Method[51] to monitor for leaks. The Modified El Paso Method, which is included in the Petroleum Refinery Sector rule (*i.e.*, 40 CFR part 63, subpart CC), was identified in our review of the RACT/BACT/LAER clearinghouse database. It is also required by the TCEQ for facilities complying with their HRVOC rule (*i.e.*, 30 TAC Chapter 115, Subchapter H, Division 3). The Modified El Paso Method measures a larger number of compounds than the current methods required in the MON and is more effective in identifying leaks. For heat exchange system LDAR programs, the compliance monitoring option, leak definition, and frequency of monitoring for leaks are all important considerations affecting emission reductions by identifying when there is a leak and when to take corrective actions to repair the leak. Therefore, we evaluated the Modified El Paso Method for use at MON facilities, including an assessment of appropriate leak definitions and monitoring frequencies.

In order to identify an appropriate Modified El Paso Method leak definition for MON facilities, we identified two rules, TCEQ's HRVOC rule and the Petroleum Refinery Sector rule, both of which incorporate this monitoring method and have leak definitions corresponding to the use of this methodology. We also reviewed data submitted in response to a CAA section 114 request for the Ethylene Production RTR where facilities performed sampling using the Modified El Paso Method.

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[51] The Modified El Paso Method uses a dynamic or flow-through system for air stripping a sample of the water and analyzing the resultant off-gases for VOC using a common flame ionization detector (FID) analyzer. The method is described in detail in Appendix P of the TCEQ's Sampling Procedures Manual: *The Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound (VOC) Emissions from Water Sources*. Appendix P is included in the docket for this rulemaking.

The Petroleum Refinery Sector rule and TCEQ's HRVOC rule have leak definitions of total strippable hydrocarbon concentration (as methane) in the stripping gas ranging from 3.1 ppmv to 6.2 ppmv. In addition, sources subject to the Petroleum Refinery Sector rule may not delay the repair of leaks for more than 30 days where, during subsequent monitoring, a total strippable hydrocarbon concentration (as methane) in the stripping gas of 62 ppmv or higher is found. In reviewing the Ethylene Production RTR CAA section 114 data, a clear delineation in the hydrocarbon mass emissions data was noticed at 6.1 ppmv of total strippable hydrocarbon (as methane) in the stripping gas. In addition, given that both the leak concentration and water recirculation rate of the heat exchange system are key variables affecting the hydrocarbon mass emissions from heat exchange systems, the overall Ethylene Production RTR CAA section 114 data for all heat exchange systems sampled generally showed lower hydrocarbon mass emissions for leaks at or below 6.1 ppmv of total strippable hydrocarbon (as methane) in the stripping gas compared to leaks found above 6.1 ppmv of total strippable hydrocarbon (as methane) in the stripping gas. Taking into account the range of actionable leak definitions in use by other rules that require use of the Modified El Paso Method currently (*i.e.*, 3.1 ppmv – 6.2 ppmv of total strippable hydrocarbon (as methane) in the stripping gas), and the magnitude of emissions for leaks of total strippable hydrocarbon (as methane) in the stripping gas above 6.1 ppmv compared to other leaks identified in the CAA section 114 sampling data, we chose to evaluate a leak definition at the upper end of identified actionable leak definitions in our analysis. Thus, the Modified El Paso Method leak definition we evaluated was 6.2 ppmv of total strippable hydrocarbon concentration (as methane) in the stripping gas for both new and existing heat exchange systems, along with not allowing delay of repair of leaks for more than 30 days where, during subsequent monitoring, a total strippable hydrocarbon concentration (as methane) in the stripping gas of 62 ppmv or higher is found.

We determined an appropriate leak monitoring frequency by reviewing the current monitoring frequencies that MON facilities are subject to, along with frequencies for the Petroleum Refinery Sector rule and the TCEQ HRVOC rule, and information gathered in the Ethylene Production RTR CAA section 114 survey. As a first step, we reviewed whether it was still reasonable to specify more frequent monitoring for a 6-month period after repair of leaks. Our review of the Ethylene Production RTR CAA section 114 data showed that no leaks were identified during the 6-month period post repair for any of the facilities that reported heat exchange system compliance data that had leaks. Thus, we find that re-monitoring once after repair of a leak, at the monitoring location where the leak was identified, is sufficient from a continuous compliance perspective to demonstrate a successful repair. The monitoring frequencies currently required by MON for where no leaks are found were, thus, considered the base frequencies (*i.e.*, quarterly monitoring for existing and new heat exchange systems). Once we determined the base frequencies, we next considered more stringent monitoring frequencies. Both the Petroleum Refinery Sector rule, which includes monthly monitoring for existing sources, under certain circumstances, and the TCEQ HRVOC rule, which includes continuous monitoring provisions for existing and new sources, have more stringent monitoring frequencies. However, the incremental HAP cost effectiveness to change from quarterly to monthly monitoring and monthly to continuous monitoring was found to be $40,000/ton and $500,000/ton, respectively. We conclude that these costs are not reasonable for MON facilities. Thus, we chose to evaluate quarterly monitoring for existing and new heat exchange systems (*i.e.*, the base monitoring frequency currently in the rule).

Based on this technology review, we identified the following control option for heat exchanger systems as a development in practice that can be implemented at a reasonable cost: quarterly monitoring for existing and new heat exchange systems (after an initial 6 months of monthly monitoring) with the Modified El Paso Method and a leak definition of 6.2 ppmv of total strippable hydrocarbon concentration (as methane) in the stripping gas.

We then estimated the impacts of this control option assuming that all 201 MON facilities would be affected by requiring the use of the Modified El Paso Method. As part of our analysis, we assumed owners or operators conducting quarterly monitoring for three or more of these heat exchange systems would elect to purchase a stripping column and FID analyzer and perform in-house Modified El Paso monitoring (because the total annualized costs for in-house Modified El Paso monitoring are less than the costs for contracted services). In addition, we assumed repairs could be performed by plugging a specific heat exchanger tube, and if a heat exchanger is leaking to the extent that it needs to be replaced, then it is effectively at the end of its useful life. Therefore, we determined that the cost of replacing a heat exchanger is an operational cost that would be incurred by the facility as a result of routine maintenance and equipment replacement, and it is not attributable to the control option.

Table 10 of this preamble presents the nationwide impacts for requiring 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. See the technical memorandum titled *Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in this analysis.

Based on the costs and emission reductions for the identified control option, we are proposing to revise the MON for heat exchange systems pursuant to CAA section 112(d)(6). We are proposing at 40 CFR 63.2490(d)(1) to specify quarterly monitoring for existing and new heat exchange systems (after an initial 6 months of monthly monitoring) using the Modified El Paso Method and a leak definition of 6.2 ppmv of total strippable hydrocarbon concentration (as methane) in the stripping gas. We are also proposing at 40 CFR 63.2490(d)(4) 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. We are also proposing at 40 CFR 63.2490(d)(2) and (3) re-monitoring at the monitoring location where a leak is identified to ensure that any leaks found are fixed. Finally, we are proposing that none of these proposed requirements would apply to heat exchange systems that have a maximum cooling water flow rate of 10 gallons per minute or less. We solicit comment on the proposed requirements.

Table 10. Nationwide Emissions Reductions and Cost Impact for Requiring the Modified El Paso Method for Heat Exchange Systems at MON Facilities[1]

Control Option	Total Capital Investment ($)	Total Annualized Costs w/o Credits[2] ($/yr)	VOC Emission Reductions (tpy)	HAP Emission Reductions (tpy)	HAP Cost Effectiveness w/o Credits[2] ($/ton)	Total Annualized Costs with Credits[2] ($/yr)	HAP Cost Effectiveness with Credits[2] ($/ton)
1	1,483,000	261,000	306	31	8,530	(14,000)	(470)

[1] Costs are calculated for the year 2016.

[2] Recovery credits represent the cost savings of chemicals in process lines not leaking into heat exchange systems and, therefore, not being lost, due to application of the El Paso Method.

3. Process Vents, Storage Tanks, Transfer Racks, Wastewater

We did not identify any cost-effective developments in practices, processes, or control technologies for process vents, storage tanks, transfer racks, and waste streams that achieve a greater HAP emission reduction beyond the emission reduction already required by MON, with the exception of developments presented in section IV.C of this preamble to specifically control ethylene oxide emissions from process vents and storage tanks. Therefore, we are not proposing any changes to the NESHAP for these emission process groups based on our technology review. For further details on the assumptions and methodologies used in these analyses, see the technical memoranda titled *Clean Air Act Section 112(d)(6) Technology Review for Process Vents, Wastewater, Transfer Racks, and Storage Tanks Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, which is available in the docket for this rulemaking.

E. What other actions are we proposing?

In addition to the proposed actions described above, we are proposing additional revisions to the NESHAP. We are proposing revisions to the SSM provisions of the MACT rule in order to ensure that they are consistent with the Court decision in *Sierra Club v. EPA*, 551 F. 3d 1019 (D.C. Cir. 2008), which vacated two provisions that exempted sources from the requirement to comply with otherwise applicable CAA section 112(d) emission standards during periods of SSM. We also are proposing revisions to require electronic reporting of emissions test results and to clarify text or correct typographical errors, grammatical errors, and cross-reference errors. Our analyses and proposed changes related to these issues are discussed below.

1. SSM Requirements

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 40 CFR 63.6(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.

We are proposing the elimination of the SSM exemption in this rule which appears at 40 CFR 63.2450(a). Consistent with *Sierra Club v. EPA*, we are proposing standards in this rule that apply at all times. We are also proposing several revisions to Table 12 (the General Provisions Applicability Table) as is explained in more detail below. For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption as further described below. In addition, we are proposing to make the portion of the "deviation" definition in 40 CFR 63.2550(i) that specifically addresses SSM periods no longer applicable beginning 3 years after publication of the final rule in the **Federal Register**. Finally, we are proposing at 40 CFR 63.2450(e)(4), 40 CFR 63.2480(f), and 40 CFR 63.2485(p) and (q) to make references that are related to an SSM exemption in 40 CFR part 63, subpart G (for wastewater), 40 CFR part 63, subpart SS (for process vents, storage tanks, transfer racks), and 40 CFR part 63, subparts H and UU, and 40 CFR part 65, subpart F (for equipment leaks), will no longer be applicable.

The EPA has attempted to ensure that the provisions we are proposing to eliminate are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether we have successfully done so.

We are proposing that emissions from startup and shutdown activities be included when determining if all the standards are being attained. As currently proposed in 40 CFR 63.2450(a)(2), compliance with the emission limitations (including operating limits) in this subpart is required “at all times.” We solicit comment on whether owners and operators in the Miscellaneous Organic Chemical Manufacturing source category will be able to comply with the standards during these times. Emission reductions for process vents and transfer rack operations are typically achieved by routing vapors to an APCD such as a flare, thermal oxidizer, or carbon adsorber. It is common practice in this source category to start an APCD prior to startup of the emissions source it is controlling, so the APCD would be operating before emissions are routed to it. We expect APCDs would be operating during startup and shutdown events in a manner consistent with normal operating periods, and that these APCDs will be operated to maintain and meet the monitoring parameter operating limits set during the performance test.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source’s operations. Malfunctions, in contrast, are neither predictable nor routine. Instead they are, by definition, sudden, infrequent, and not reasonably preventable failures of emissions control, process, or monitoring equipment (40 CFR 63.2) (Definition of malfunction). 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 and this reading has been upheld as reasonable by the Court in *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 606-610 (2016). Under CAA section 112, emissions standards for new sources must be no less stringent than the level “achieved” by the best controlled similar source and for existing sources generally must be no less stringent than the average emission limitation “achieved” by the best performing 12 percent of sources in the category. There is nothing in CAA section 112 that directs the

Agency to consider malfunctions in determining the level "achieved" by the best performing sources when setting emission standards. As the Court has recognized, the phrase "average emissions limitation achieved by the best performing 12 percent of" sources "says nothing about how the performance of the best units is to be calculated." *Nat'l Ass'n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1141 (D.C. Cir. 2013). While the EPA accounts for variability in setting emissions standards, nothing in CAA section 112 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source.

As the Court recognized in *U.S. Sugar Corp.*, accounting for malfunctions in setting standards would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree, and duration of various malfunctions that might occur. *Id.* at 608 ("the EPA would have to conceive of a standard that could apply equally to the wide range of possible boiler malfunctions, ranging from an explosion to minor mechanical defects. Any possible standard is likely to be hopelessly generic to govern such a wide array of circumstances."). As such, the performance of units that are malfunctioning is not "reasonably" foreseeable. See, *e.g.*, *Sierra Club v. EPA*, 167 F.3d 658, 662 (D.C. Cir. 1999) ("The EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to 'invest the resources to conduct the perfect study.'"). See also, *Weyerhaeuser v. Costle*, 590 F.2d 1011, 1058 (D.C. Cir. 1978) ("In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation."). In addition, emissions during a malfunction event can be significantly higher than emissions at any other time of source operation. For example, if an APCD with 99-percent removal goes off-line as a result of a malfunction (as might happen if, for example, the bags in a baghouse catch fire) and the emission unit is a steady state type unit that would take days to shut down, the source would go from 99-percent control to zero control until the control device was repaired. The source's emissions during the malfunction would be 100 times higher than during normal operations. As such, the emissions over a 4-day malfunction period would exceed the annual emissions of the source during normal operations. As this example illustrates, accounting for malfunctions could lead to standards that are not reflective of (and significantly less stringent than) levels that are achieved by a well-performing non-malfunctioning source. It is reasonable to interpret CAA section 112 to avoid such a result. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

Although no statutory language compels the EPA to set standards for malfunctions, the EPA has the discretion to do so where feasible. For example, in the Petroleum Refinery Sector RTR, the EPA established a work practice standard for unique types of malfunction that result in releases from PRDs or emergency flaring events because the EPA had information to determine that such work practices reflected the level of control that applies to the best performers. 80 FR 75178, 75211-14 (December 1, 2015). The EPA will consider whether circumstances warrant setting standards for a particular type of malfunction in the Miscellaneous Organic Chemical Manufacturing source category, and, if so, whether the EPA has sufficient information to identify the relevant best performing sources and establish a standard for such malfunctions. We also encourage commenters to provide any such information.

In the event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions.

a. General Duty

We are proposing to revise the General Provisions table (Table 12) entry for 40 CFR 63.6(e)(1)(i) by adding a separate row for 40 CFR 63.6(e)(1)(i) and changing the “yes” in column 3 to a “no” in which 40 CFR 63.6(e)(1)(i) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. We are proposing to add general duty regulatory text at 40 CFR 63.2450(u) that reflects the general duty to minimize emissions “at all times” while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal operations, startup and shutdown, and malfunction events in describing the general duty. Therefore, the language the EPA is proposing for 40 CFR 63.2450(u) does not include that language from 40 CFR 63.6(e)(1).

We are also proposing to revise the General Provisions table (Table 12) entry for 40 CFR 63.6(e)(1)(ii) by adding a separate row for 40 CFR 63.6(e)(1)(ii) and changing the “yes” in column 3 to a “no” in which 40 CFR 63.6(e)(1)(ii) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. Section 63.6(e)(1)(ii) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant with the general duty requirement being added at 40 CFR 63.2450(u).

b. SSM Plan

We are proposing to revise the General Provisions table (Table 12) entries for 40 CFR 63.6(e)(3)(i), (ii), (v) through (viii), and (ix) by changing the “yes” in column 3 to a “no” in which these provisions would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. Generally, these paragraphs require development of an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As noted, the EPA is proposing to remove the SSM exemptions. Therefore, affected units will be subject to an emission standard during such events. The applicability of a standard during such events will ensure that sources have ample incentive to plan for and achieve compliance and, thus, the SSM plan requirements are no longer necessary.

c. Compliance with Standards

We are proposing to revise the General Provisions table (Table 12) entry for 40 CFR 63.6(f)(1) by changing the “yes” in column 3 to a “no” in which 40 CFR 63.6(f)(1) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. The current language of 40 CFR 63.6(f)(1) exempts sources from non-opacity standards during periods of SSM. As discussed above, the court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club*, the EPA is proposing to revise standards in this rule to apply at all times.

We are proposing to revise the General Provisions table (Table 12) entry for 40 CFR 63.6(h)(1) by adding a separate row for 40 CFR 63.6(h)(1) and changing the “yes” in column 3 to a “no” in which 40 CFR 63.6(h)(1) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. The current language of 40 CFR 63.6(h)(1) exempts sources from opacity standards during periods of SSM. As discussed above, the Court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standard apply continuously. Consistent with *Sierra Club,* the EPA is proposing to revise standards in this rule to apply at all times.

d. Performance Testing

We are proposing to revise the General Provisions table (Table 12) entry for 40 CFR 63.7(e)(1) by changing the “yes” in column 3 to a “no” in which 40 CFR 63.7(e)(1) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. Section 63.7(e)(1) describes performance testing requirements. The EPA is instead proposing to add performance testing at 40 CFR 63.2450(g)(6). The performance testing we are proposing to add differs from the General Provisions performance testing provisions in several respects. The proposed regulatory text does not include the language in 40 CFR 63.7(e)(1) that restated the SSM exemption and language that precluded startup and shutdown periods from being considered “representative” for purposes of performance testing. The proposed performance testing provisions will exclude periods of startup or shutdown as representative conditions for conducting performance testing. As in 40 CFR 63.7(e)(1), performance tests conducted under this subpart should not be conducted during malfunctions because conditions during malfunctions are often not representative of normal operating conditions. The EPA is proposing to add language that requires the owner or operator to 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. Section 63.7(e) requires that the owner or operator make available to the Administrator upon request such records "as may be necessary to determine the condition of the performance test," but does not specifically require the information to be recorded. The regulatory text the EPA is proposing to add to this provision builds on that requirement and makes explicit the requirement to record the information.

e. Monitoring

We are proposing to revise the General Provisions table (Table 12) entries for 40 CFR 63.8(c)(1)(i) through (iii) by changing the "yes" in column 3 to a "no" in which these provisions would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. The cross-references to the general duty and SSM plan requirements in those subparagraphs are not necessary in light of other requirements of 40 CFR 63.8 that require good air pollution control practices (40 CFR 63.8(c)(1)) and that set out the requirements of a quality control program for monitoring equipment (40 CFR 63.8(d)).

We are proposing to revise the General Provisions table (Table 12) entry for 40 CFR 63.8(d) by adding separate rows for 40 CFR 63.8(d)(1) through (3) and changing the "yes" in column 3 to a "no" in which 40 CFR 63.8(d)(3) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. The final sentence in 40 CFR 63.8(d)(3) refers to the General Provisions' SSM plan requirement which is no longer applicable. The EPA is proposing to add to the rule at 40 CFR 63.2450(j)(6) text that is identical to 40 CFR 63.8(d)(3) except that the final sentence is replaced with the following sentence: "The program of corrective action should be included in the plan required under §63.8(d)(2)."

f. Recordkeeping

We are proposing to revise the General Provisions table (Table 12) entry for 40 CFR 63.10(b)(2)(i), (ii), (iv), and (v) by adding separate rows for each provision and changing the “yes” in column 3 to a “no” in which 40 CFR 63.10(b)(2)(ii), (iv), and (v) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. 40 CFR 63.10(b)(2)(ii) describes the recordkeeping requirements during a malfunction. The EPA is proposing to add such requirements to 40 CFR 63.2525(h) and (l). The regulatory text we are proposing to add differs from the General Provisions it is replacing in that the General Provisions requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution control, and monitoring equipment. The EPA is proposing that this requirement apply to any failure to meet an applicable standard and is requiring that the source record the date, time, and duration of the failure rather than the “occurrence.” The EPA is also proposing to add to 40 CFR 63.2525(l) a provision that sources keep records that include a list of the affected source or equipment and actions taken to minimize emissions, an estimate of the quantity of each regulated pollutant emitted over the standard for which the source failed to meet the standard, and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

When applicable, 40 CFR 63.10(b)(2)(iv) requires sources to record actions taken during SSM events when actions were inconsistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required. The requirement previously applicable under 40 CFR 63.10(b)(2)(iv)(B) to record actions to minimize emissions and record corrective actions is now applicable by reference to 40 CFR 63.2525(l). Finally, when applicable, 40 CFR 63.10(b)(2)(v) requires sources to record actions taken during SSM events to show that actions taken were consistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required.

We are proposing to revise the General Provisions table (Table 12) entry for 40 CFR 63.10(c)(15) by adding a separate row for this provision and changing column 3 to a "no" in which 40 CFR 63.10(c)(15) would no longer be applicable to CEMS beginning 3 years after publication of the final rule in the **Federal Register**. When applicable, the provision allows an owner or operator to use the affected source's SSM plan or records kept to satisfy the recordkeeping requirements of the SSM plan, specified in 40 CFR 63.6(e), to also satisfy the requirements of 40 CFR 63.10(c)(10) through (12). The EPA is proposing to eliminate this requirement because SSM plans would no longer be required, and, therefore, 40 CFR 63.10(c)(15) no longer serves any useful purpose for affected units.

2. Monitoring, Recordkeeping, and Reporting Requirements

a. Monitoring for Adsorbers that Cannot be Regenerated and Regenerative Adsorbers that are Regenerated Offsite

We are proposing to add monitoring requirements at 40 CFR 63.2450(e)(7) for adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite because the MON does not currently include specific monitoring requirements for this type of APCD. We are proposing owners and operators of this type of APCD use dual adsorbent beds in series and conduct daily monitoring. We have prescribed a dual bed system because the use of a single bed does not ensure continuous compliance unless the bed is replaced significantly before breakthrough.[52] A dual bed system will allow one bed to be saturated before it is replaced and, therefore, makes efficient use of the adsorber bed without exceeding the emission limits. Facilities utilizing non-regenerative adsorbers must typically replace the adsorber bed at the end of the absorbent life and already have a second bed onsite. Therefore, we have determined that these proposed requirements would not impose a cost increase; it would only require a second adsorber bed to be purchased earlier than it would have under previous rules. In addition, once the second adsorber was purchased, the source would need to purchase and install canisters at the same rate they would have under previous rules. In fact, the source could likely reduce costs over time because the adsorber beds can be used to a greater saturation level without risking non-compliance. Without the proposed requirement to use dual adsorbent beds in series, sources might replace the beds based on temperature readings, the vendor’s bed life expectancy estimates or past history, and may replace the bed prematurely in order to avoid non-compliance. The burden of purchasing the initial additional adsorber bed, when compared to the large increase in compliance assurance, is small.

Similar to regenerative adsorbers, in order to monitor performance deterioration, we are proposing measurements of HAP or TOC using a portable analyzer or chromatographic analysis for non-regenerative absorbers. We are proposing that these measurements be taken daily on the outlet of the first adsorber bed in series using a sample port. Furthermore, in order to relieve some monitoring burden, we have included the option to reduce the frequency of monitoring with the portable analyzer from daily to weekly or monthly. If you choose this option, you would

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[52] We are proposing to define the term “breakthrough” at 40 CFR 63.2550(i) to mean the time when the level of HAP or total organic compound (TOC) detected is at the highest concentration allowed to be discharged from an adsorber system.

first be required to establish an average adsorber bed life. For periods when more than 2 months remain on the bed life, monthly monitoring can be conducted, and when more than 2 weeks remain on the bed life, weekly monitoring can be conducted.

b. Electronic Reporting

The EPA is proposing that owners and operators of MON facilities submit electronic copies of required flare management plans (at 40 CFR 63.2450(e)(5)(iv)), compliance reports (at 40 CFR 63.2520(e)), performance test reports (at 40 CFR 63.2520(f)), and performance evaluation reports (at 40 CFR 63.2520(g)) through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the electronic data submission process is provided in the memorandum, *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, which is available in the docket for this rulemaking. The proposed rule requires that performance test results collected using test methods that are supported by the EPA's Electronic Reporting Tool (ERT) as listed on the ERT website[53] at the time of the test be submitted in the format generated through the use of the ERT and that other performance test results be submitted in portable document format (PDF) using the attachment module of the ERT. Similarly, performance evaluation results of continuous monitoring systems measuring relative accuracy test audit pollutants that are supported by the ERT at the time of the test must be submitted in the format generated through the use of the ERT and other performance evaluation results be submitted in PDF using the attachment module of the ERT. Flare management plans would be uploaded as a PDF file. For compliance reports, the proposed rule requires that owners and operators use the appropriate spreadsheet template to

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[53] *https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert.*

submit information to CEDRI. A draft version of the proposed template for these reports is included in the docket for this rulemaking.[54] The EPA specifically requests comment on the content, layout, and overall design of the template.

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. In both circumstances, the decision to accept the claim of needing additional time to report is within the discretion of the Administrator, and reporting should occur as soon as possible. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a report by the reporting deadline for reasons outside of their control. The situation where an extension may be warranted due to outages of the EPA's CDX or CEDRI which precludes an owner or operator from accessing the system and submitting required reports is addressed in 40 CFR 63.2520(h). The situation where an extension may be warranted due to a force majeure event, which 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 an owner or operator from complying with the requirement to submit a report electronically as required by this rule is addressed in 40 CFR 63.2520(i). Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility.

The electronic submittal of the reports addressed in this proposed rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the

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[54] See *MON_Compliance_Report_Draft_Template.xlsx*, which is available in the docket for this rulemaking.

environment, will improve compliance by facilitating the ability of regulated facilities to demonstrate compliance with requirements and by facilitating the ability of delegated state, local, tribal, and territorial air agencies and the EPA to assess and determine compliance, and will ultimately reduce burden on regulated facilities, delegated air agencies, and the EPA. Electronic reporting also eliminates paper-based, manual processes, thereby saving time and resources, simplifying data entry, eliminating redundancies, minimizing data reporting errors, and providing data quickly and accurately to the affected facilities, air agencies, the EPA, and the public. Moreover, electronic reporting is consistent with the EPA's plan[55] to implement Executive Order 13563 and is in keeping with the EPA's agency-wide policy[56] developed in response to the White House's Digital Government Strategy.[57] For more information on the benefits of electronic reporting, see the memorandum, *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, which is available in the docket for this rulemaking.

3. Other Corrections

There are several additional revisions that we are proposing to 40 CFR part 63, subpart FFFF, to clarify text or correct typographical errors, grammatical errors, and cross-reference errors. These proposed editorial corrections and clarifications are summarized in Table 11 of this preamble.

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[55] *EPA's Final Plan for Periodic Retrospective Reviews*, August 2011. Available at: *https://www.regulations.gov/document?D=EPA-HQ-OA-2011-0156-0154*.

[56] *E-Reporting Policy Statement for EPA Regulations*, September 2013. Available at: *https://www.epa.gov/sites/production/files/2016-03/documents/epa-ereporting-policy-statement-2013-09-30.pdf*.

[57] *Digital Government: Building a 21st Century Platform to Better Serve the American People*, May 2012. Available at: *https://obamawhitehouse.archives.gov/sites/default/files/omb/egov/digital-government/digital-government.html*.

Table 11. Summary of Proposed Editorial and Minor Corrections to 40 CFR part 63, subpart FFFF

Provision	**Proposed Revision**
40 CFR 63.2435(c)(3)	Remove the word “future.”
40 CFR 63.2450(c)(2)	Correct cross-reference error by changing “§63.2525(f)” to “§63.2525(e)(3) and (4).”
40 CFR 63.2450(j)(1)(i)	Correct typo by changing "an Fourier" to "a Fourier"; and clarify performance specification requirements.
40 CFR 63.2450(k)(4)(iv)	Correct cross-reference error by changing “(b)(2)(ii)” to “(c)(2)(ii).”
40 CFR 63.2450(l)	Correct typo by adding the “§” symbol.
40 CFR 63.2460(b)(5)	Change “under either” to “if you comply with one.”
40 CFR 63.2470(e)(3)	Replace the phrase “pounds per square inch gage pressure (psig)” with “psig” because the term is defined earlier in the rule text.
40 CFR 63.2475(a)	Correct cross-reference error by changing “in paragraphs (b) and (c) of this section” to “in paragraph (b) of this section.”
40 CFR 63.2520(c)(2)	Correct cross-reference error by changing “§63.2460(c)(5)” to “§63.2450(k)(6).”
40 CFR 63.2520(e)(5)(iii)(A)	For clarification, change "The date and time" to "The start date, start time, and duration in hours."
40 CFR 63.2520(e)(5)(iii)(B)	For clarification, change "The date, time, and duration that each CEMS was out-of-control, including the information in 63.8(c)(8)." to "The start date, start time, and duration in hours that each CEMS was out-of-control and a description of the corrective actions taken."
40 CFR 63.2520(e)(5)(iii)(D)	For clarification, change "A summary of the total duration of the deviation during the reporting period" to "The total duration in hours of all deviations for each CMS during the reporting period" and add "the total operating time in hours of the affected source during the reporting period."
40 CFR 63.2520(e)(5)(iii)(F)	For clarification, change "A summary of the total duration of CMS downtime" to "The total duration in hours of CMS downtime for each CMS."
40 CFR 63.2520(e)(5)(iii)(I)	For clarification, change "A brief description of the CMS" to "The monitoring equipment manufacturer(s) and model number(s) and the pollutant or parameter monitored."

40 CFR 63.2520(e)(8)	For clarification, change "Records of process units added to a PUG as specified in §63.2525(i)(4) and records of primary product redeterminations as specified in §63.2525(i)(5)" to "For process units added to a PUG, you must report the description and rationale specified in §63.2525(i)(4). You must report your primary product redeterminations specified in §63.2525(i)(5)."
40 CFR 63.2525(f)	Correct cross-reference error by changing “§63.2450(s)” to “§63.2450(p).”
40 CFR 63.2550(i)	Add definition for “bench-scale process.”
40 CFR 63.2550(i)	Change “it is up to and including the extruder, die plate” to remove “extruder,” in the definition of “miscellaneous organic chemical manufacturing process” in bullet (6).
40 CFR 63.2550(i)	Define “loading rack” as a single system used to fill tank trucks and railcars at a single geographic site. Loading equipment and operations that are physically separate (*i.e.*, do not share common piping, valves, and other equipment) are considered to be separate loading racks. The term “loading rack” is used in the definition of “transfer rack” but “loading rack” is not defined in the MON.
All Equations	For clarification, renumber equations in numerical order.
Table 12 to 40 CFR part 63, Subpart FFFF	Add a row for “§63.7(e)(4).”

F. What compliance dates are we proposing?

Amendments to the MON proposed in this rulemaking for adoption under CAA section 112(d)(2) and (3) and CAA section 112(d)(6) are subject to the compliance deadlines outlined in the CAA under section 112(i).

For all of the requirements we are proposing under CAA sections 112(d)(2), (3), and (d)(6), we are proposing all affected sources must comply with all of the amendments no later than 3 years after the effective date of the final rule, or upon startup, whichever is later. For existing sources, CAA section 112(i) provides that the compliance date shall be as expeditious as practicable, but no later than 3 years after the effective date of the standard. (“Section 112(i)(3)’s three-year maximum compliance period applies generally to any emission standard…promulgated under [section 112].” *Association of Battery Recyclers v. EPA*, 716 F.3d 667, 672 (D.C. Cir. 2013)). In determining what compliance period is as expeditious as practicable, we consider the amount of time needed to plan and construct projects and change operating procedures. As provided in CAA section 112(i), all new affected sources would be required to comply with these requirements by the effective date of the final amendments to the MON standards or startup, whichever is later.

We are proposing new operating and monitoring requirements for flares under CAA section 112(d)(2) and (3). We anticipate that these requirements would require the installation of new flare monitoring equipment and we project most MCPUs would install new control systems to monitor and adjust assist gas (air or steam) addition rates. Similar to the addition of new control equipment, these new monitoring requirements for flares would require engineering evaluations, solicitation and review of vendor quotes, contracting and installation of the equipment, and operator training. Installation of new monitoring and control equipment on flares will require the flare to be taken out of service. Depending on the configuration of the flares and flare header system, taking the flare out of service may also require a significant portion of the MCPU to be shutdown. Therefore, for all existing affected sources, and all new affected sources that commence construction or reconstruction after April 4, 2002, and on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we are proposing that it is necessary to provide 3 years after the effective date of the final rule (or upon startup, whichever is later) for owners or operators to comply with the new operating and monitoring requirements for flares. For all new affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we are proposing owners or operators comply with the new operating and monitoring requirements for flares by the effective date of the final rule (or upon startup, whichever is later).

Under CAA section 112(d)(2) and (3), we are proposing new vent control requirements for bypasses. These requirements would typically require the addition of piping and potentially new control requirements. As these vent controls would most likely be routed to the flare, we are proposing, for all existing affected sources, and all new affected sources that commence construction or reconstruction after April 4, 2002, and on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, to provide 3 years after the effective date of the final rule for owners or operators to allow coordination of these bypass modifications with the installation of the new monitoring equipment for the flares. For all new affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we are proposing owners or operators comply with the new vent control requirements for bypasses by the effective date of the final rule (or upon startup, whichever is later).

For atmospheric PRD in HAP service, we are establishing a work practice standard that requires a process hazard analysis and implementation of a minimum of three redundant measures to prevent atmospheric releases. Alternately, owners or operators may elect to install closed-vent systems to route these PRDs to a flare, drain (for liquid thermal relief valves), or other control system. We anticipate that sources will need to identify the most appropriate preventive measures or control approach; design, install, and test the system; install necessary process instrumentation and safety systems; and may need to time installations with equipment shutdown or maintenance outages. Therefore, for all existing affected sources, and all new affected sources that commence construction or reconstruction after April 4, 2002, and on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we are proposing a compliance date of 3 years from the effective date of the final rule (or upon startup, whichever is later) for owners or operators to comply with the work practice standards for atmospheric PRD releases. For all new affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we are proposing owners or operators comply with the work practice standards for atmospheric PRD releases by the effective date of the final rule (or upon startup, whichever is later).

Under our technology review for equipment leaks under CAA section 112(d)(6), we are revising the leak definition for light liquid pumps at batch processes from 10,000 ppm to 1,000 ppm. Affected sources are currently monitoring light liquid pumps on a monthly basis, and the change we are proposing to lower the leak definition would require no additional equipment and would only result in identifying smaller leaks that require repair. Therefore, we believe that this change could be implemented quickly and are proposing a compliance date of 1 year after the effective date of the final rule, or upon startup, whichever is later, for all existing affected sources, and all new affected sources that commence construction or reconstruction after April 4, 2002, and on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** to comply with the proposed leak definition for light liquid pumps at batch processes. For all new affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we are proposing owners or operators comply with the proposed leak definition for light liquid pumps at batch processes by the effective date of the final rule (or upon startup, whichever is later).

As a result of our technology review for heat exchange systems, we are proposing to replace the existing leak definition and monitoring method with a new leak definition and monitoring method. We project some owners and operators would require engineering evaluations, solicitation and review of vendor quotes, contracting and installation of monitoring equipment, and operator training. In addition, facilities will need time to read and understand the amended rule requirements and update standard operating procedures. Therefore, we are proposing that all existing affected sources, and all new affected sources that commence construction or reconstruction after April 4, 2002, and on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** must comply with the new monitoring requirements for heat exchange systems no later than 3 years after the effective date of the final rule, or upon startup, whichever is later. For all new affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we are proposing owners or operators comply with the new monitoring requirements for heat exchange systems by the effective date of the final rule (or upon startup, whichever is later).

Additionally, as previously mentioned in this preamble, we are proposing under CAA section 112(f), new provisions for process vents and storage tanks at MON facilities emitting ethylene oxide, as well as proposing to implement one of two co-proposed control options for equipment leaks. The proposed provisions may require additional time to plan, purchase, and install equipment for ethylene oxide control. For example, for process vents, if the affected source cannot demonstrate 99.9-percent control of ethylene oxide emissions, or reduce ethylene oxide emissions to less than 1 ppmv (from each process vent) or 5 pounds per year (for all combined process vents), then a new control system will need to be installed. Therefore, we are proposing a compliance date of 2 years after the effective date of the final rule, or upon startup, whichever is later for all existing affected sources, and all new affected sources that commence construction or reconstruction after April 4, 2002, and on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**] to comply with the proposed ethylene oxide requirements. For all new affected sources that commenced construction or reconstruction after [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], we are proposing owners or operators comply with the ethylene oxide requirements by the effective date of the final rule (or upon startup, whichever is later).

Finally, we are proposing to change the requirements for SSM by removing the exemption from the requirements to meet the standard during SSM periods and by removing the requirement to develop and implement an SSM plan. We are also proposing electronic reporting requirements. We are positing that facilities would need some time to successfully accomplish these revisions, including time to read and understand the amended rule requirements, to evaluate their operations to ensure that they can meet the standards during periods of startup and shutdown, as defined in the rule, and make any necessary adjustments, including making adjustments to standard operating procedures, and to convert reporting mechanisms to install necessary hardware and software. 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. From our assessment of the timeframe needed for compliance with the entirety of the proposed revisions to SSM requirements as well as the new proposed electronic reporting requirements for flare management plans, compliance reports, and performance evaluation reports, the EPA considers a period of 3 years after the effective date of the final rule to be the most expeditious compliance period practicable and, thus, is proposing that all affected sources be in compliance with these revised requirements upon initial startup or within 3 years of the effective date of the final rule, whichever is later. However, we are proposing to provide 60 days after the effective date of the final rule (or upon startup, whichever is later) for owners or operators to comply with the requirement to report performance test results and reports electronically.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected sources?

There are 201 MON facilities currently operating. A complete list of facilities that are currently subject to the MON is available in Appendix 1 of the document titled *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking.

B. What are the air quality impacts?

At the current level of control, estimated ethylene oxide emissions from the modeling file were approximately 9.5 tpy from the eight facilities with emission process groups in ethylene oxide service. For co-proposed Control Option 1, we estimated ethylene oxide emissions reductions of 8.8 tpy for equipment leaks, storage tanks, and process vents in ethylene oxide service. For co-proposed Control Option 2, we estimated ethylene oxide emissions reductions of 9.0 tpy for equipment leaks, storage tanks, and process vents in ethylene oxide service.

At the current level of control, we estimate HAP emissions for 194 MON facilities of approximately 2,558 tpy and VOC emissions of approximately 19,719 tpy, based on the MON emissions inventory. We estimate that HAP emissions reductions would range from 52 tpy (based on model plant estimates) to 116 tpy (based on the MON emissions inventory) and VOC emissions reductions range from 283 tpy (based on the MON emissions inventory) to 385 tpy (based on model plant estimates) as a result of the proposed amendments for MON equipment leaks and heat exchange systems. Note, these emissions reductions do not consider the potential excess emissions reductions from flares that could result from the proposed requirements; we estimated flare excess emissions reductions of 263 tpy HAP (based on model plant estimates) and 1,254 tpy VOC (based on model plant estimates). If we considered the flare excess emissions, the total emissions reductions as a result of the proposed amendments were estimated between 315 and 379 tpy of HAP and between 1,537 and 1,639 tpy of VOC. These emissions reductions are documented in the following memoranda, which is available in the docket for this rulemaking: *Clean Air Act Section 112(d)(6) Technology Review for Equipment Leaks Located in the Miscellaneous Organic Chemical Manufacturing Source Category, Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems Located in the Miscellaneous Organic Chemical Manufacturing Source Category, Analysis of Control Options for Storage Tanks and Process Vents Emitting Ethylene Oxide Located in the Miscellaneous Organic Chemical Manufacturing Source Category, Analysis of Control Options for Equipment Leaks at Processes that use Ethylene Oxide Located in the Miscellaneous Organic Chemical Manufacturing Source Category, Control Option Impacts for Flares Located in the Miscellaneous Organic Chemical Manufacturing Source Category, and Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule.*

C. What are the cost impacts?

The nationwide costs of the proposed amendments are presented in Table 12 of this preamble for (1) all MON sources, (2) only MON sources not expected to be affected by the proposed ethylene oxide-specific controls (*i.e.*, equipment leaks, heat exchange systems, flares, PRDs, maintenance vents, recordkeeping and reporting), and (3) only MON sources expected to be affected by the proposed ethylene oxide controls (*i.e.*, storage tanks, process vents, equipment leaks). As described in this preamble, for ethylene oxide sources, we are co-proposing two options which differ only by the proposed equipment leak standards. The first option (*i.e.*, Control Option 1) proposes that the same equipment leak standards (*i.e.*, lower the leak definition for batch pumps to 1,000 ppm and require connector monitoring at a leak definition of 500 ppm) will apply to all facilities in ethylene oxide service. The second option (*i.e.*, Control Option 2) proposes that different equipment leak standards will apply to facilities in ethylene oxide service, depending on whether their cancer risk is lower than 100-in-1 million (*i.e.*, lower the leak definition for batch pumps to 1,000 ppm and require connector monitoring at a leak definition of 500 ppm) or greater than 100-in-1 million (*i.e.*, require leakless pumps, leakless valves, and connector monitoring at a leak definition of 100 ppm). These costs are presented in different columns in Table 12 of this preamble, and are referred to as “Option 1” and “Option 2,” respectively.

Table 12. Total Capital and Annualized Costs (2016$)

	Option 1			Option 2		
	Total Capital Costs	**Total Annualized Costs w/o Recovery Credits**	**Total Annualized Costs w/Recovery Credits**	**Total Capital Costs**	**Total Annualized Costs w/o Recovery Credits**	**Total Annualized Costs w/Recovery Credits**
All MON Sources – Total	**42,400,000**	**12,600,000**	**12,300,000**	**43,000,000**	**12,700,000**	**12,400,000**
MON Sources w/o Ethylene Oxide Controls – Total	**39,700,000**	**10,900,000**	**10,500,000**	**39,700,000**	**10,900,000**	**10,500,000**
Flares[1]	17,200,000	4,090,000	4,090,000	17,200,000	4,090,000	4,090,000
Equipment Leaks[2]	829,000	150,000	82,000	829,000	150,000	82,000
Pressure Relief Devices[3]	18,700,000	4,770,000	4,770,000	18,700,000	4,770,000	4,770,000
Maintenance Vents[3]	-	2,340	2,340	-	2,340	2,340
Heat Exchange Systems[4]	1,480,000	261,000	(14,300)	1,480,000	261,000	(14,300)
Recordkeeping and Reporting	1,490,000	1,610,000	1,610,000	1,490,000	1,610,000	1,610,000
MON Sources w/ Ethylene Oxide Controls – Total	**2,720,000**	**1,760,000**	**1,750,000**	**3,320,000**	**1,860,000**	**1,850,000**
Equipment Leaks[5]	76,200	48,500	45,300	674,000	149,000	145,000
Process Vents[6]	2,180,000	914,000	914,000	2,180,000	914,000	914,000
Storage Tanks[6]	466,000	796,000	796,000	466,000	796,000	796,000

[1] The flare costs include purchasing analyzers, monitors, natural gas and steam, developing a flare management plan, and performing root cause analysis and corrective action, and are discussed in the memorandum titled *Control Option Impacts for Flares Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, in the docket for this rulemaking.

[2] Equipment leak costs include LDAR at a leak definition of 1,000 ppmv for light liquid pumps at batch processes, and are discussed in the memorandum titled *Clean Air Act Section 112(d)(6) Technology Review for Equipment Leaks Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, in the docket for this rulemaking.

[3] Pressure relief device costs were developed to comply with the proposed work practice standard and include implementation of three prevention measures, performing root cause analysis and corrective action, and purchasing pressure relief device monitors. Maintenance costs were estimated to document equipment opening procedures and circumstances under which the alternative maintenance vent limit is used. Costs are discussed in the memorandum titled *Review of Regulatory Alternatives for Certain Vent Streams in the Miscellaneous Organic Chemical Manufacturing Source Category*, in the docket for this rulemaking.

[4] Heat exchange systems costs include the use of the Modified El Paso Method to monitor for leaks, and are discussed in the memorandum titled *Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems in the Miscellaneous Organic Chemical Manufacturing Source Category*, in the docket for this rulemaking.

[5] Equipment leak costs for equipment in ethylene oxide service include two co-proposed options, Control Options 1 and 2. Control Option 1 includes LDAR at a leak definition of 1,000 ppmv for light liquid pumps at batch processes with monthly monitoring and connector monitoring at a leak definition of 500 ppmv with annual monitoring. Control Option 2 includes the same controls as Control Option 1 for streams in ethylene oxide service, except that more stringent controls are applied to the two facilities with risks above 100-in-1 million. These more stringent controls include requiring light liquid pumps in ethylene oxide service to be leakless with annual monitoring, gas/vapor and light liquid valves in ethylene oxide service to either be leakless with annual monitoring or not be leakless and be monitored quarterly with equipment considered to be leaking if an instrument reading above background is found, and connector monitoring for connectors in ethylene oxide service at a leak definition of 100 ppmv with monthly monitoring. Costs are discussed in the memorandum titled *Analysis of Control Options for*

Equipment Leaks at Processes that use Ethylene Oxide Located in the Miscellaneous Organic Chemical Manufacturing Source Category, in the docket for this rulemaking.

[6] Costs for process vents and storage tanks in ethylene oxide service include the requirement to control all storage tanks in ethylene oxide service, the installation of a control device that achieves 99.9-percent ethylene oxide emissions reductions, and initial and periodic performance testing of the control device, and are discussed in the memorandum titled *Analysis of Control Options for Storage Tanks and Process Vents Emitting Ethylene Oxide Located in the Miscellaneous Organic Chemical Manufacturing Source Category*, in the docket for this rulemaking.

D. What are the economic impacts?

The EPA conducted economic impact analyses for this proposal, as detailed in the memorandum, *Economic Impact and Small Business Screening Assessments for the Proposed Amendments to the National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing*, which is available in the docket for this action. For the proposed amendments, the EPA performed a screening analysis for impacts on all affected facilities by comparing compliance costs to revenues at the ultimate parent company level. This is known as the cost-to-revenue or cost-to-sales ratio, or the “sales test.” The “sales test” is an impact methodology the EPA employs in analyzing entity impacts as opposed to a “profits test,” in which annualized compliance costs are calculated as a share of profits. The use of a “sales test” for estimating small business impacts for a rulemaking is consistent with guidance offered by the EPA on compliance with the Regulatory Flexibility Act (RFA) and is consistent with guidance published by the U.S. Small Business Administration’s Office of Advocacy that suggests that cost as a percentage of total revenues is a metric for evaluating cost increases on small entities in relation to increases on large entities.

There are 201 facilities affected by the proposed amendments. Of these, 17 facilities, or 8.5 percent, are small entities. We calculated the cost-to-sales ratios for all the affected facilities to determine (1) the magnitude of the costs of the proposed amendments and (2) whether there would be a significant impact on small entities. To be conservative, we used facility-specific costs without recovery credits. For the two options for all firms the average cost-to-sales ratio is approximately 0.02 percent; the median cost-to-sales ratio is less than 0.01 percent; and the maximum cost-to-sales ratio is approximately 0.89 percent. For large firms, the average cost-to-sales ratio is less than 0.01 percent; the median cost-to-sales ratio is less than 0.01 percent; and the maximum cost-to-sales ratio is approximately 0.47 percent. For small firms, the average cost-to-sales ratio is approximately 0.23 percent, the median cost-to-sales ratio is 0.10 percent, and the maximum cost-to-sales ratio is 0.89 percent. The costs of the proposal are not expected to result in a significant market impact, regardless of whether they are passed on to the purchaser or absorbed by the firms.

E. What are the benefits?

EPA did not monetize the benefits from the estimated emission reductions of HAP associated with this proposed action. However, we expect this proposed action would provide benefits associated with HAP emission reductions and lower risk of adverse health effects in communities near facilities subject to the MON.

VI. Request for Comments

We solicit comments on this proposed action. In addition to general comments on this proposed action, we are also interested in additional data that may improve the risk assessments and other analyses. We are specifically interested in receiving any improvements to the data in the site-specific emissions profiles used for risk modeling. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or information. Section VII of this preamble provides more information on submitting data.

VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available for download on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/miscellaneous-organic-chemical-manufacturing-national-emission*. The data files include detailed information for each HAP emissions release point for the facilities in the source category.

If you believe that the data are not representative or are inaccurate, please identify the data in question, provide your reason for concern, and provide any "improved" data that you have, if available. When you submit data, we request that you provide documentation of the basis for the revised values to support your suggested changes. To submit comments on the data downloaded from the RTR website, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information.

2. Fill in the commenter information fields for each suggested revision (*i.e.*, commenter name, commenter organization, commenter email address, commenter phone number, and revision comments).

3. Gather documentation for any suggested emissions revisions (*e.g.*, performance test reports, material balance calculations).

4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID No. EPA-HQ-OAR-2018-0746 (through the method described in the **ADDRESSES** section of this preamble).

5. If you are providing comments on a single facility or multiple facilities, you need only submit one file for all facilities. The file should contain all suggested changes for all sources at that facility (or facilities). We request that all data revision comments be submitted in the form of

updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/miscellaneous-organic-chemical-manufacturing-national-emission.*

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

This action is a significant regulatory action that was submitted to OMB for review because it raises novel legal or policy issues. Any changes made in response to OMB recommendations have been documented in the docket. The EPA prepared an analysis of the potential economic impacts associated with this action. This analysis, *Economic Impact and Small Business Screening Assessments for Proposed Amendments to the National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing*, is available in the docket for this rulemaking.

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

This action is expected to be an Executive Order 13771 regulatory action. Details on the estimated costs of this proposed rule can be found in the EPA's analysis of the potential costs and benefits associated with this action.

C. Paperwork Reduction Act (PRA)

The information collection activities in this proposed rule have been submitted for approval to OMB under the PRA. The Information Collection Request (ICR) document that the

EPA prepared has been assigned EPA ICR number 1969.08. You can find a copy of the ICR in the docket for this rulemaking, and it is briefly summarized here.

We are proposing amendments that change the reporting and recordkeeping requirements for several emission sources at MON facilities (*e.g.*, flares, heat exchangers, PRDs, storage tanks, and process vents). The proposed 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, subpart FFFF.

Respondents/affected entities: Owners or operators of MON facilities.

Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart FFFF).

Estimated number of respondents: 201 facilities.

Frequency of response: Semiannual or annual. Responses include notification of compliance status reports and semiannual compliance reports.

Total estimated burden: 12,118 hours (per year) for the responding facilities and 2,413 hours (per year) for the Agency. Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $3,639,019 (per year), which includes $2,412,332 annualized capital and operation and maintenance costs for the responding facilities.

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.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to

OIRA_submission@omb.eop.gov, Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The EPA will respond to any ICR-related comments in the 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 impose requirements on the small entities in the NESHAP and associated regulated industrial source category described in section I.A of this preamble. This action is projected to affect 201 facilities, and 17 of these facilities are small entities. For the small entities, the average cost-to-sales ratio is approximately 0.23 percent. Additional details of the associated analysis are presented in the memorandum, *Economic Impact and Small Business Screening Assessments Analysis for the Proposed Amendments to the National Emissions Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing*, which is 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.

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 MON facilities that have been identified as being affected by this 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 III.A and C and sections IV.B and C of this preamble and further documented in the risk report, *Residual Risk Assessment for the Miscellaneous Organic Chemical Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this rulemaking.

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

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The overall economic impact of this proposed rule should be minimal for MON facilities and their parent companies (which are engaged in the energy sector).

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

This action involves technical standards. Therefore, the EPA conducted searches for the Miscellaneous Organic Chemical Manufacturing NESHAP through the Enhanced National Standards Systems Network (NSSN) 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, 3, 3A, 3B, 4, 5, 15, 18, 21, 22, 25, 25A, 25D, 26, 26A, 29 of 40 CFR part 60, appendix A, 301, 305, 316, 320 of 40 CFR part 63, 624, 625 of 40 CFR part 136, appendix A, 1624, 1625, 1666, 1671 of CFR part 136, appendix A, 5030B (SW-846), 5031, 8260, 8260B (SW-846), 8260D (SW-846), 8270, 8430 (SW-846) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846 third edition. 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 considered it as a potential equivalent method. We reviewed all potential standards to determine the practicality of the VCS for this rule. This review requires significant method validation data that meet the requirements of EPA Method 301 of appendix A to 40 CFR part 63 for accepting alternative methods or scientific, engineering, and policy equivalence to procedures in the EPA reference methods. The EPA may reconsider determinations of impracticality when additional information is available for particular VCS.

No applicable VCS were identified for EPA Methods 1A, 2A, 2D, 2F, 2G, 21, 22, 25D, 305, 316, 625, 1624, 1625, 1666, 1671, 5030B, 8260, 8260B, 8260D, 8270C, and 8430 (SW-846). The following five VCS were identified as acceptable alternatives to the EPA test methods for the purpose of this rule.

The EPA proposes to use the VCS ANSI/ASME PTC 19.10-1981 Part 10 (2010), "Flue and Exhaust Gas Analyses,"[58] as an acceptable alternative to EPA Method 3B for the manual procedures only and not the instrumental procedures. The ANSI/ASME PTC 19.10-1981-Part 10 method incorporates both manual and instrumental methodologies for the determination of oxygen content. The manual method segment of the oxygen determination is performed through the absorption of oxygen. The EPA is not proposing to incorporate this VCS by reference. This method is available both in the docket for this rulemaking and 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*.

Additionally, the EPA proposes to use the 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 of appendix A–6 to 40 CFR part 60 with the following caveats. This ASTM procedure 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 as measurable. We are proposing that ASTM D6420-18 should not be used for methane and ethane because the atomic mass is less than 35; and ASTM D6420 should never be specified as a total VOC method. The ASTM D6420-18 test method employs a direct interface gas chromatograph-mass spectrometer

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[58] We identified this same 40 CFR part 63, subpart SS VCS that was also identified in the NTTAA review for the Ethylene Production RTR and is already being proposed as an amendment in that action (for further information, see EPA Docket ID No. EPA-HQ-OAR-2017-0357 and 84 FR 54330).

to measure 36 VOCs. The test method provides on-site analysis of extracted, unconditioned, and unsaturated (at the instrument) gas samples from stationary sources.

Also, the EPA proposes to use the VCS ASTM D6784-02 (2008) reapproved, “Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method),” as an acceptable alternative to EPA Method 101A of appendix B to 40 CFR part 61 and EPA Method 29 of appendix A–8 to 40 CFR part 60 (portion for mercury only) as a method for measuring mercury. Note that this applies to concentrations of approximately 0.5 to 100 micrograms per normal cubic meter of air. This method describes equipment and procedures for obtaining samples from effluent ducts and stacks, equipment and procedures for laboratory analysis, and procedures for calculating results. This method is applicable for sampling elemental, oxidized, and particle-bound mercury in flue gases of coal-fired stationary sources

In addition, the EPA proposes to use the VCS ASTM D6348-12e1, "Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform (FTIR) Spectroscopy,"[58] as an acceptable alternative to EPA Method 320 of appendix A to 40 CFR part 63 with caveats requiring inclusion of selected annexes to the standard as mandatory. The ASTM D6348-12e1 method is an extractive FTIR Spectroscopy-based field test method and is used to quantify gas phase concentrations of multiple target compounds in emission streams from stationary sources. The EPA is not proposing to incorporate this VCS by reference. We are proposing the test plan preparation and implementation in the Annexes to ASTM D 6348-03, Sections Al through A8 are mandatory; and in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent (%) R must be determined for each target analyte (Equation A5.5). We are proposing that 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). We are proposing that the %R value for each compound be reported in the test report, and all field measurements be corrected with the calculated %R value for that compound by using the following equation:

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

Furthermore, the EPA proposes to use the VCS ASTM D5790-95 (2012), “Standard Test Method for Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry,” as an acceptable alternative to EPA Method 624 (and for the analysis of total organic HAP in wastewater samples). We are proposing that, for wastewater analyses, this ASTM method should be used with the sampling procedures of EPA Method 25D or an equivalent method to be a complete alternative. The ASTM standard is validated for all of the 21 volatile organic HAP (including toluene) targeted by EPA Method 624 but is also validated for an additional 14 HAP not targeted by the EPA method. This test method covers the identification and simultaneous measurement of purgeable volatile organic compounds. This method is applicable to a wide range of organic compounds that have sufficiently high volatility and low water solubility to be efficiently removed from water samples using purge and trap procedures. We note that because the Cellulose Products Manufacturing proposed rule has already proposed to revise the performance test requirements table (Table 4 to Subpart UUUU of Part 63) to add IBR for ASTM D5790-95 (2012) (see 84 FR 47375), the EPA is not proposing to incorporate this specific aspect of this VCS by reference

The four ASTM methods (ASTM D6420-18, ASTM D6784-02 (2008) reapproved, ASTM D6348-12e1, and ASTM D5790-95 (2012)) are available both in the docket for this rulemaking and at ASTM International, 1850 M Street, NW, Suite 1030, Washington, DC 20036. See *https://www.astm.org/*.

Finally, the search identified 23 other VCS that were potentially applicable for this rule in lieu of the EPA reference methods. After reviewing the available standards, the EPA determined that 23 candidate VCS identified for measuring emissions of pollutants or their surrogates subject to emission standards in the rule would not be practical due to lack of equivalency, documentation, validation data, and other important technical and policy considerations. Additional information for the VCS search and determinations can be found in the memorandum, *Voluntary Consensus Standard Results for National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing NESHAP RTR*, which is available in the docket for this action.

The EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially applicable VCS, and to explain why the EPA should use such standards in this regulation.

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 (58 FR 7629, February 16, 1994). 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 MON 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 after implementation of the proposed controls, and emissions reductions from the proposed revisions will benefit these groups the most.

The documentation for this decision is contained in sections IV.B and C of this preamble, and the technical report, *Risk and Technology Review – Analysis of Demographic Factors for Populations Living Near Miscellaneous Organic Chemical Manufacturing Source Category Operations*, which is available in the docket for this action.

List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements.

______________________________.
Dated: November 1, 2019.

Andrew R. Wheeler,
Administrator.

For the reasons set forth in the preamble, the Environmental Protection Agency proposes to amend 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—[Amended]

2. Section 63.14 is amended by:

a. Revising paragraph (h)(72);

b. Redesignating paragraphs (h)(92) through (111) as paragraphs (h)(93) through (1112);

c. Adding new paragraph (h)(92); and

d. Revising newly redesignated paragraph (h)(98).

The revisions and addition read as follows:

§63.14 Incorporations by reference.

*   *   *   *   *

(h) *   *   *

(72) ASTM D5790-95 (2012), Standard Test Method for Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry, IBR approved for §63.2485(h) 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, IBR approved for §63.2450(j).

*   *   *   *   *

(98) ASTM D6784-02 (Reapproved 2008), Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), (Approved April 1, 2008), IBR approved for §§63.2465(d), 63.11646(a), 63.11647(a) and (d), tables 1, 2, 5, 11, 12t, and 13 to subpart DDDDD, tables 4 and 5 to subpart JJJJJ, tables 4 and 6 to subpart KKKKK, table 4 to subpart JJJJJJ, table 5 to subpart UUUUU, and appendix A to subpart UUUUU.

*   *   *   *   *

Subpart FFFF—[Amended]

3. Section 63.2435 is amended by revising paragraph (c)(3) to read as follows:

§63.2435 Am I subject to the requirements in this subpart?

*   *   *   *   *

(c) *   *   *

(3) The affiliated operations located at an affected source under subparts GG (National Emission Standards for Aerospace Manufacturing and Rework Facilities), KK (National Emission Standards for the Printing and Publishing Industry), JJJJ (NESHAP: Paper and Other Web Coating), MMMM (NESHAP: Surface Coating of Miscellaneous Metal Parts and Products), and SSSS (NESHAP: Surface Coating of Metal Coil) of this part 63. Affiliated operations include, but are not limited to, mixing or dissolving of coating ingredients; coating mixing for viscosity adjustment, color tint or additive blending, or pH adjustment; cleaning of coating lines and coating line parts; handling and storage of coatings and solvent; and conveyance and treatment of wastewater.

*   *   *   *   *

4. Section 63.2445 is amended by revising paragraph (a) introductory text and paragraph

(b) and adding paragraphs (g) through (i) to read as follows:

§63.2445 When do I have to comply with this subpart?

(a) Except as specified in paragraphs (g) through (i) of this section, if you have a new affected source, you must comply with this subpart according to the requirements in paragraphs (a)(1) and (2) of this section.

* * * * *

(b) Except as specified in paragraphs (g) through (i) of this section, if you have an existing source on November 10, 2003, you must comply with the requirements for existing sources in this subpart no later than May 10, 2008.

* * * * *

(g) All affected sources that commenced construction or reconstruction on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, must be in compliance with the requirements listed in paragraphs (g)(1) through (6) of this section upon initial startup or **[date 3 years after date of publication of final rule in the Federal Register]**, whichever is later. All affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, must be in compliance with the requirements listed in paragraphs (g)(1) through (6) of this section upon initial startup, or **[date of publication of final rule in the Federal Register]**, whichever is later.

(1) The general requirements specified in §63.2450(a)(2), (e)(4) through (7), (g)(6) and (7), (i)(3), (j)(5)(ii) and (6), (k)(1)(ii), (7), and (8), (t), and (u), §63.2520(d)(3), (e)(11) through (13), §63.2525(m) and (n), and §63.2535(m).

(2) For process vents, the requirements specified in §63.2455(d), §63.2520(e)(14), and §63.2525(p).

(3) For equipment leaks and pressure relief devices, the requirements specified in §63.2480(e) and (f), §63.2520(d)(4) and (e)(14), and §63.2525(q).

(4) For wastewater streams and liquid streams in open systems within an MCPU, the requirements specified in §63.2485(i)(2)(iii), (n)(2)(vii), and (p) and (q).

(5) For heat exchange systems, the requirements specified in §63.2490(d), §63.2520(e)(16), and §63.2525(r).

(6) The other notification, reports, and records requirements specified in §63.2500(g), §63.2520(e)(5)(ii)(D), §63.2520(e)(5)(iii)(M) and (N), and §63.2525(l) and (u).

(h) All affected sources that commenced construction or reconstruction on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], must be in compliance with the requirements for light liquid pumps in §63.2480(b)(6) and (c)(10) upon initial startup or **[date 1 year after date of publication of final rule in the Federal Register]**, whichever is later. All affected sources that commenced construction or reconstruction after [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], must be in compliance with the requirements for light liquid pumps in §63.2480(b)(6) and (c)(10), except for equipment in ethylene oxide service, upon initial startup, or **[date of publication of final rule in the Federal Register]**, whichever is later.

(i) All affected sources that commenced construction or reconstruction on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], must be in compliance with the ethylene oxide requirements in §63.2470(b) and (c)(4), §63.2492, §63.2493, §63.2520(d)(5) and (e)(17), §63.2525(s), Table 1 to this subpart, item 5, Table 2 to this subpart, item 3, Table 4 to this subpart, item 3, and Table 6 to this subpart, item 3 upon initial startup or **[date 2 years after date of publication of final rule in the Federal Register]**, whichever is later. All affected sources that commenced construction or reconstruction after [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], must be in compliance with the ethylene oxide requirements listed in §63.2470(b) and (c)(4), §63.2492, §63.2493, §63.2520(d)(5) and (e)(17), §63.2525(s), Table 1 to this subpart, item 5, Table 2 to this subpart, item 3, Table 4 to this subpart, item 3, and Table 6 to this subpart, item 3 upon initial startup, or **[date of publication of final rule in the Federal Register]**, whichever is later.

5. Section 63.2450 is amended by:

a. Revising paragraph (a), paragraph (c)(2) introductory text, and paragraphs (e)(1) through (3);

b. Adding paragraphs (e)(4) through (7);

c. Revising paragraph (f) introductory text, paragraph (g) introductory text, paragraphs (g)(3)(ii), and (g)(5);

d. Adding paragraphs (g)(6) and (7);

e. Revising paragraphs (i) introductory text and (i)(2);

f. Adding paragraph (i)(3);

g. Revising paragraph (j) introductory text, paragraph (j)(1) introductory text, paragraphs (j)(1)(i), (j)(2)(iii), and (j)(3) through (j)(5);

h. Adding paragraph (j)(6);

i. Revising paragraphs (k) introductory text, (k)(1), and (k)(4)(iv);

j. Adding paragraphs (k)(7) and (k)(8);

k. Revising paragraphs (l), (o), and (p); and

l. Adding paragraphs (t) and (u).

The revisions and additions read as follows:

§63.2450 What are my general requirements for complying with this subpart?

(a) You must comply with paragraphs (a)(1) and (2) of this section.

(1) Except as specified in paragraph (a)(2) of this section, you must be in compliance with the emission limits and work practice standards in tables 1 through 7 to this subpart at all times, except during periods of startup, shutdown, and malfunction (SSM), and you must meet the requirements specified in §§63.2455 through 63.2490 (or the alternative means of compliance in §63.2495, §63.2500, or §63.2505), except as specified in paragraphs (b) through (s) of this section. You must meet the notification, reporting, and recordkeeping requirements specified in §§63.2515, 63.2520, and 63.2525.

(2) Beginning no later than the compliance dates specified in §63.2445(g), paragraph (a)(1) of this section no longer applies. Instead, you must be in compliance with the emission limits and work practice standards in tables 1 through 7 to this subpart at all times, and you must meet the requirements specified in §§63.2455 through 63.2490 (or the alternative means of compliance in §63.2495, §63.2500, or §63.2505), except as specified in paragraphs (b) through (u) of this section. You must meet the notification, reporting, and recordkeeping requirements specified in §§63.2515, 63.2520, and 63.2525.

*   *   *   *   *

(c) *   *   *

(2) Determine the applicable requirements based on the hierarchy presented in paragraphs (c)(2)(i) through (vi) of this section. For a combined stream, the applicable requirements are specified in the highest-listed paragraph in the hierarchy that applies to any of the individual streams that make up the combined stream. For example, if a combined stream consists of emissions from Group 1 batch process vents and any other type of emission stream, then you

must comply with the requirements in paragraph (c)(2)(i) of this section for the combined stream; compliance with the requirements in paragraph (c)(2)(i) of this section constitutes compliance for the other emission streams in the combined stream. Two exceptions are that you must comply with the requirements in table 3 to this subpart and §63.2465 for all process vents with hydrogen halide and halogen HAP emissions, and recordkeeping requirements for Group 2 applicability or compliance are still required (e.g., the requirement in §63.2525(e)(3) and (4) to track the number of batches produced and calculate rolling annual emissions for processes with Group 2 batch process vents).

* * * * *

(e) * * *

(1) Except when complying with §63.2485, if you reduce organic HAP emissions by venting emissions through a closed-vent system to any combination of control devices (except a flare) or recovery devices, you must meet the requirements of paragraph (e)(4) of this section, and the requirements of §63.982(c) and the requirements referenced therein.

(2) Except as specified in paragraph (e)(5) of this section or except when complying with §63.2485, if you reduce organic HAP emissions by venting emissions through a closed-vent system to a flare, you must meet the requirements of paragraph (e)(4) of this section, and the requirements of §63.982(b) and the requirements referenced therein.

(3) Except as specified in paragraphs (e)(3)(i) and (ii) of this section, if you use a halogen reduction device to reduce hydrogen halide and halogen HAP emissions from halogenated vent streams, you must meet the requirements of paragraph (e)(4) of this section, and the requirements of §63.994 and the requirements referenced therein. If you use a halogen reduction device before

a combustion device, you must determine the halogen atom emission rate prior to the combustion device according to the procedures in §63.115(d)(2)(v).

(i) Beginning on and after **[date 60 days after date of publication of final rule in the Federal Register]**, performance test reports must be submitted according to the procedures in §63.2520(f).

(ii) If you use a halogen reduction device other than a scrubber, then you must submit procedures for establishing monitoring parameters to the Administrator as part of your precompliance report as specified in §63.2520(c)(8).

(4) Beginning no later than the compliance dates specified in §63.2445(g), the referenced provisions specified in paragraphs (e)(4)(i) through (xvi) of this section do not apply when demonstrating compliance with 40 CFR part 63, subpart SS.

(i) 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) of subpart SS.

(ii) §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) §63.996(c)(2)(ii) of subpart SS.

(vii) §63.997(e)(1)(i) of subpart SS.

(viii) The term “breakdowns” in §§63.998(b)(2)(i) of subpart SS.

(ix) §63.998(b)(2)(iii) of subpart SS.

(x) The phrase “other than start-ups, shutdowns or malfunctions” in §63.998(b)(5)(i)(A) of subpart SS.

(xi) The phrase “other than start-ups, shutdowns or malfunctions” in §63.998(b)(5)(i)(C) of subpart SS.

(xii) The phrase “except as provided in paragraphs (b)(6)(i)(A) and (B) of this section” in §63.998(b)(6)(i) of subpart SS.

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

(xiv) §63.998(c)(1)(ii)(D), (E), (F), and (G) of subpart SS.

(xv) §63.998(d)(1)(ii) of subpart SS.

(xvi) §63.998(d)(3)(i) and (ii) of subpart SS.

(5) For any flare that is used to reduce organic HAP emissions from an MCPU, you may elect to comply with the requirements in this paragraph in lieu of the requirements of §63.982(b) and the requirements referenced therein. However, beginning no later than the compliance dates specified in §63.2445(g), paragraphs (e)(2) and (f) of this section no longer apply to flares that control ethylene oxide emissions and flares used to control emissions from MCPUs that produce olefins or polyolefins. Instead, if you reduce organic HAP emissions by venting emissions through a closed-vent system to a steam-assisted, air-assisted, non-assisted, or pressure-assisted multi-point flare that controls ethylene oxide emissions or is used to control emissions from an MCPU that produces olefins or polyolefins, then you 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)(5)(i) through (xi) 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 MCPU that has processes and/or equipment in ethylene oxide service or that produces olefins or polyolefins. 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) You may elect to comply with the alternative means of emissions limitation requirements specified in paragraph (r) of §63.670 of subpart CC in lieu of the requirements in paragraphs (d) through (f) of §63.670 of subpart CC, as applicable. However, instead of complying with paragraph (r)(3)(iii) of §63.670 of subpart CC, you must also submit the alternative means of emissions limitation request 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 (C404-02), Attention: Miscellaneous Organic Chemical Manufacturing Sector Lead, 4930 Old Page Rd., Durham, NC 27703.

(ii) When determining compliance with the flare tip velocity and combustion zone operating limits specified in §63.670(d) and (e), the initial 15-minute block period starts with the 15-minute block that includes a full 15 minutes of the flaring event.

(iii) Instead of complying with paragraph (o)(2)(i) of §63.670 of subpart CC, you must develop and implement the flare management plan no later than the compliance dates specified in §63.2445(g).

(iv) Instead of complying with paragraph (o)(2)(iii) of §63.670 of subpart CC, if required to develop a flare management plan and submit it to the Administrator, then you 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, CORE CBI Office, U.S. EPA Mailroom (C404-02), Attention: Miscellaneous Organic Chemical Manufacturing Sector Lead, 4930 Old Page Rd., Durham, NC 27703.

(v) Substitute “MCPU” for each occurrence of “petroleum refinery.”

(vi) Each occurrence of “refinery” does not apply.

(vii) If a pressure-assisted multi-point flare is used as a control device, then you must meet the following conditions:

(A) You are not required to comply with the flare tip velocity requirements in paragraph (d) and (k) of §63.670 of subpart CC;

(B) You must substitute “800” for each occurrence of “270” in paragraph (e) of §63.670 of subpart CC;

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

(D) Instead of complying with paragraph (b) and (g) of §63.670 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, then you 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 a continuously lit pilot flame 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 the flare 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) You must ensure that if a stage of burners on the pressure-assisted multi-point flare uses cross-lighting, that the distance between any two burners in series on that stage is no more than 6 feet; and

(F) You 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 of subpart CC of this part.

(viii) If you choose to determine compositional analysis for net heating value with a continuous process mass spectrometer, then you must comply with the requirements specified in paragraphs (e)(5)(viii)(A) through (G) of this section.

(A) You must meet the requirements in §63.671(e)(2). You 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, you 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, you may use the response factor for the nearest molecular weight hydrocarbon in the calibration mix to quantify the unknown component's NHVvg.

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

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

(F) You 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 of 40 CFR part 63, subpart CC, for the process mass spectrometer. You may use the alternative sampling line temperature allowed under Net Heating Value by Gas Chromatograph in Table 13 of 40 CFR part 63, subpart CC.

(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 Equation 1 of this subpart.

$$CE = \frac{C_m - C_a}{C_a} x\,100 \qquad \text{(Eq. 1)}$$

Where :

Cm = Average instrument response (ppm)

Ca = Certified cylinder gas value (ppm)

(ix) If you use a gas chromatograph or mass spectrometer for compositional analysis for net heating value, then you may choose to use the CE of NHVmeasured 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 Equation 2 of this subpart.

$$CE = \frac{NHV_{measured} - NHV_a}{NHV_a} x\ 100 \qquad \text{(Eq. 2)}$$

Where:

NHVmeasured = Average instrument response (Btu/scf)

NHVa = Certified cylinder gas value (Btu/scf)

(x) Instead of complying with paragraph (q) of §63.670 of subpart CC, you must comply with the reporting requirements specified in §63.2520(d)(3) and §63.2520(e)(11).

(xi) Instead of complying with paragraph (p) of §63.670 of subpart CC, you must keep the flare monitoring records specified in §63.2525(m).

(6) Beginning no later than the compliance dates specified in §63.2445(g), the use of a bypass line at any time on a closed vent system to divert a vent stream to the atmosphere or to a control device not meeting the requirements specified in Table 1 through Table 7 of this subpart is an emissions standards deviation. Equipment such as low leg drains and equipment subject to §63.2480 are not subject to this paragraph (e)(6). 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) are also not subject to this paragraph (e)(6). You must also comply with the requirements specified in paragraphs (e)(6)(i) through (iv) of this section, as applicable:

(i) If you are subject to the bypass monitoring requirements of §63.148(f) of subpart G, then you must continue to comply with the requirements in §63.148(f) of subpart G and the recordkeeping and reporting requirements in §63.148(j)(2) and (3) of subpart G, and §63.148(h)(3) of subpart G, in addition to the applicable requirements specified in §63.2485(q) of this section, the recordkeeping requirements specified in §63.2525(n), and the reporting requirements specified in §63.2520(e)(12).

(ii) If you are subject to the bypass monitoring requirements of §63.172(j) of subpart H, then you must continue to comply with the requirements in §63.172(j) of subpart H and the recordkeeping and reporting requirements in §63.118(a)(3) and (4) of subpart G, and §63.118(f)(3) and (4) of subpart G, in addition to the applicable requirements specified in §63.2480(f) and §63.2485(q), the recordkeeping requirements specified in §63.2525(n), and the reporting requirements specified in §63.2520(e)(12).

(iii) If you are subject to the bypass monitoring requirements of §63.983(a)(3) of subpart SS, then you 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 the requirements specified in §63.2450(e)(4), the recordkeeping requirements specified in §63.2525(n), and the reporting requirements specified in §63.2520(e)(12).

(iv) If you are subject to the bypass monitoring requirements of §65.143(a)(3) of subpart G, then you must continue to comply with the requirements in §65.143(a)(3) of subpart G and the recordkeeping and reporting requirements in §65.163(a)(1) of subpart G and §65.166(b) of subpart G; in addition to the applicable requirements specified in §63.2480(f), the recordkeeping requirements specified in §63.2525(n), and the reporting requirements specified in §63.2520(e)(12).

(7) Beginning no later than the compliance dates specified in §63.2445(g), if you reduce organic HAP emissions by venting emissions through a closed-vent system to an adsorber(s) that cannot be regenerated or a regenerative adsorber(s) that is regenerated offsite, then you must comply with paragraphs (e)(4) and (6) and the requirements in §63.983, and you must install a system of dual adsorber units in series and comply with the requirements specified in paragraphs (e)(7)(i) through (iii) of this section.

(i) Conduct an initial performance test or design evaluation of the adsorber and establish the breakthrough limit.

(ii) Monitor the HAP or total organic compound (TOC) concentration daily through a sample port at the outlet of the first adsorber bed in series. You must measure the concentration of HAP or TOC using either a portable analyzer, in accordance with Method 21 of 40 CFR part 60, appendix A–7 or Method 25A at 40 CFR part 60, appendix A–7 using propane as the calibration gas.

(iii) Comply with paragraph (e)(7)(iii)(A) of this section, and you may reduce your monitoring frequency according to paragraph (e)(7)(iii)(B) of this section.

(A) The first adsorber in series must be replaced immediately when breakthrough, as defined in §63.2550(i), is detected between the first and second adsorber. The original second adsorber (or a fresh canister) will become the new first adsorber and a fresh adsorber will become the second adsorber. For purposes of this paragraph, ‘‘immediately’’ means within 8 hours of the detection of a breakthrough for adsorbers of 55 gallons or less, and within 24 hours of the detection of a breakthrough for adsorbers greater than 55 gallons.

(B) In lieu of the daily monitoring, you may reduce your monitoring frequency by establishing the average adsorber bed life. To establish the average adsorber bed life, you must conduct daily monitoring of the HAP or TOC concentration of the first adsorber bed in series until breakthrough, as defined in §63.2550(i), occurs for the first three adsorber bed change-outs. You must reestablish an average adsorber bed life if you change the adsorbent brand or type, or if any process changes are made that would lead to a lower bed lifetime. Once the average life of the bed is determined, you may conduct ongoing monitoring, as specified in paragraphs (e)(7)(iii)(B)(*1*) and (*2*) of this section.

(*1*) You may conduct monthly monitoring if the adsorbent has more than 2 months of life remaining, based on the average adsorber bed life, as established in paragraph (e)(7)(iii)(B) of this section, and the date the adsorbent was last replaced.

(*2*) You may conduct weekly monitoring if the adsorbent has more than 2 weeks of life remaining, based on the average adsorber bed life, established in paragraph (e)(7)(iii)(B) of this section, and the date the adsorbent was last replaced.

(f) *Requirements for flare compliance assessments.* Except as specified in paragraph (e)(5) of this section, you must comply with paragraphs (f)(1) and (2) of this section.

*   *   *   *   *

(g) *Requirements for performance tests.* The requirements specified in paragraphs (g)(1) through (7) of this section apply instead of or in addition to the requirements specified in subpart SS of this part 63.

*   *   *   *   *

(3) *   *   *

(ii) If you elect to comply with the outlet TOC concentration emission limits in tables 1 through 7 to this subpart, and the uncontrolled or inlet gas stream to the control device contains greater than 10 percent (volume concentration) carbon disulfide, you must use Method 18 or Method 15 to separately determine the carbon disulfide concentration. Calculate the total HAP or TOC emissions by totaling the carbon disulfide emissions measured using Method 18 or 15 and the other HAP emissions measured using Method 18 or 25A.

* * * * *

(5) Section 63.997(c)(1) does not apply. For the purposes of this subpart, results of all initial compliance demonstrations must be included in the notification of compliance status report, which is due 150 days after the compliance date, as specified in §63.2520(d)(1). If the initial compliance demonstration includes a performance test and the results are submitted electronically via CEDRI in accordance with §63.2520(f), the process unit(s) tested, the pollutant(s) tested, and the date that such performance test was conducted may be submitted in the notification of compliance status report in lieu of the performance test results. The performance test results must be submitted to CEDRI by the date the notification of compliance status report is submitted.

(6) Beginning no later than the compliance dates specified in §63.2445(g), in lieu of the requirements specified in §63.7(e)(1) you must conduct performance tests under such conditions as the Administrator specifies based on representative performance of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown. You may not conduct performance tests during periods of malfunction. You 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, you must make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(7) Comply with the requirements in §63.2450(e)(4), as applicable.

* * * * *

(i) *Outlet concentration correction for combustion devices.* Except as specified in paragraph (i)(3) of this section, when §63.997(e)(2)(iii)(C) requires you to correct the measured concentration at the outlet of a combustion device to 3 percent oxygen if you add supplemental combustion air, the requirements in either paragraph (i)(1) or (2) of this section apply for the purposes of this subpart.

* * * * *

(2) You must correct the measured concentration for supplemental gases using Equation 3 in §63.2460; you may use process knowledge and representative operating data to determine the fraction of the total flow due to supplemental gas.

(3) Beginning no later than the compliance dates specified in §63.2445(g), paragraphs (i)(1) and (2) no longer apply. Instead, when §63.997(e)(2)(iii)(C) requires you to correct the measured concentration at the outlet of a combustion device to 3 percent oxygen if you add supplemental combustion air, you must follow the procedures in §63.997(e)(2)(iii)(C) to perform the concentration correction, except you may also use Method 3A of 40 CFR part 60, appendix A-2 to determine the oxygen concentration.

(j) *Continuous emissions monitoring systems.* Each continuous emissions monitoring system (CEMS) must be installed, operated, and maintained according to the requirements in §63.8 and paragraphs (j)(1) through (6) of this section.

(1) Each CEMS must be installed, operated, and maintained according to the applicable Performance Specification of 40 CFR part 60, appendix B, and the applicable Quality Assurance Procedures of 40 CFR part 60, appendix F, and according to paragraph (j)(2) of this section, except as specified in paragraph (j)(1)(i) of this section. For any CEMS meeting Performance Specification 8, you must also comply with appendix F, procedure 1 of 40 CFR part 60. Locate the sampling probe or other interface at a measurement location such that you obtain representative measurements of emissions from the regulated source. For CEMS installed after **[date of publication of final rule in the Federal Register]**, conduct a performance evaluation of each CEMS within 180 days of installation of the monitoring system.

(i) If you wish to use a CEMS other than a Fourier Transform Infrared Spectroscopy (FTIR) meeting the requirements of Performance Specification 15 to measure hydrogen halide, other than hydrogen chloride, and halogen HAP or CEMS meeting the requirements of Performance Specification 18 to measure hydrogen chloride before we promulgate a Performance Specification for such CEMS, you must prepare a monitoring plan and submit it for approval in accordance with the procedures specified in §63.8.

* * * * *

(2) * * *

(iii) For CEMS meeting Performance Specification 8 used to monitor performance of a noncombustion device, determine the predominant organic HAP using either process knowledge or the screening procedures of Method 18 on the control device inlet stream, calibrate the monitor on the predominant organic HAP, and report the results as C1. Use Method 18 of appendix A-6 of 40 CFR part 60, Method 320 of appendix A to 40 CFR part 63, ASTM D6420-

18 (incorporated by reference, see § 63.14), or any approved alternative as the reference method for the relative accuracy tests, and report the results as C1.

(3) You must conduct a performance evaluation of each CEMS according to the requirements in§ 63.8 and according to the applicable Performance Specification of 40 CFR part 60, appendix B, except that the schedule in §63.8(e)(4) does not apply, and before **[date 60 days after date of publication of final rule in the Federal Register]**, the results of the performance evaluation must be included in the notification of compliance status report. Beginning on and after **[date 60 days after date of publication of final rule in the Federal Register]**, the results of the performance evaluation must be submitted in accordance with §63.2520(g).

(4) The CEMS data must be reduced to operating day or operating block averages computed using valid data consistent with the data availability requirements specified in §63.999(c)(6)(i)(B) through (D), except monitoring data also are sufficient to constitute a valid hour of data if measured values are available for at least two of the 15-minute periods during an hour when calibration, quality assurance, or maintenance activities are being performed. An operating block is a period of time from the beginning to end of batch operations within a process. Operating block averages may be used only for batch process vent data. In computing operating day or operating block averages to determine compliance with this subpart, you must exclude monitoring data recorded during CEMS breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, or other quality assurance activities. Out-of-control periods are as specified in §63.8(c)(7).

(5) If you add supplemental gases, you must comply with paragraphs (j)(5)(i) and (ii) of this section.

(i) Except as specified in paragraph (j)(5)(ii) of this section, correct the measured concentrations in accordance with paragraph (i) of this section and §63.2460(c)(6).

(ii) Beginning no later than the compliance dates specified in §63.2445(g), you must use Performance Specification 3 of 40 CFR part 60, appendix B, to certify your oxygen CEMS, and you must comply with procedure 1 of 40 CFR part 60, appendix F. Use Method 3A of 40 CFR part 60, appendix A-2 as the reference method when conducting a relative accuracy test audit.

(6) Beginning no later than the compliance dates specified in §63.2445(g), in lieu of the requirements specified in §63.8(d)(3) you must keep the written procedures required by §63.8(d)(2) on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, you must keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan required under §63.8(d)(2). In addition to the information required in §63.8(d)(2), your written procedures for CEMS must include the information in paragraphs (j)(6)(i) through (vi) of this section:

(i) Description of CEMS installation location.

(ii) Description of the monitoring equipment, including the manufacturer and model number for all monitoring equipment components and the span of the analyzer.

(iii) Routine quality control and assurance procedures.

(iv) Conditions that would trigger a CEMS performance evaluation, which must include, at a minimum, a newly installed CEMS; a process change that is expected to affect the performance of the CEMS; and the Administrator’s request for a performance evaluation under section 114 of the Clean Air Act.

(v) Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8);

(vi) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c) and (e)(1).

(k) *Continuous parameter monitoring.* The provisions in paragraphs (k)(1) through (68) of this section apply in addition to the requirements for continuous parameter monitoring system (CPMS) in subpart SS of this part 63.

(1) You must comply with paragraphs (k)(1)(i) and (ii) of this section.

(i) Except as specified in paragraph (k)(1)(ii) of this section, record the results of each calibration check and all maintenance performed on the CPMS as specified in §63.998(c)(1)(ii)(A).

(ii) Beginning no later than the compliance dates specified in §63.2445(g), paragraph (k)(1)(i) of this section no longer applies. Instead, you must record the results of each calibration check and all maintenance performed on the CPMS as specified in §63.998(c)(1)(ii)(A), except you must record all maintenance, not just preventative maintenance.

*   *   *   *   *

(4) *   *   *

(iv) Recording the downstream temperature and temperature difference across the catalyst bed as specified in §63.998(a)(2)(ii)(B)(2) and (c)(2)(ii) is not required.

*   *   *   *   *

(7) Beginning no later than the compliance dates specified in §63.2445(g), the manufacturer’s specifications or your written procedures must include a schedule for calibrations, preventative maintenance procedures, a schedule for preventative maintenance, and corrective actions to be taken if a calibration fails. If a CPMS calibration fails, the CPMS is considered to be inoperative until you take corrective action and the system passes calibration. You must record the nature and cause of instances when the CPMS is inoperative and the corrective action taken.

(8) You must comply with the requirements in §63.2450(e)(4), as applicable.

* * * * *

(l) *Startup, shutdown, and malfunction.* Sections §63.152(f)(7)(ii) through (iv) and §63.998(b)(2)(iii) and (b)(6)(i)(A), which apply to the exclusion of monitoring data collected during periods of SSM from daily averages, do not apply for the purposes of this subpart.

* * * * *

(o) You may not use a flare to control halogenated vent streams or hydrogen halide and halogen HAP emissions.

(p) Except as specified in paragraph (t) of this section, opening a safety device, as defined in §63.2550, is allowed at any time conditions require it to avoid unsafe conditions.

* * * * *

(t) Beginning no later than the compliance dates specified in §63.2445(g), paragraph (p) of this section no longer applies. Instead, you must comply with the requirements specified in §63.2480(e).

(u) *General Duty.* Beginning no later than the compliance dates specified in §63.2445(g), at all times, you 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 you 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 which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

6. Section 63.2455 is amended by revising paragraph (a) and adding paragraph (d) to read as follows:

§63.2455 What requirements must I meet for continuous process vents?

(a) You must meet each emission limit in Table 1 to this subpart that applies to your continuous process vents, and you must meet each applicable requirement specified in paragraphs (b) through (d) of this section, §63.2492, and §63.2493(a) through (c).

* * * * *

(d) *Maintenance vents.* Beginning no later than the compliance dates specified in §63.2445(g), you may designate a 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. You must comply with the applicable requirements in paragraphs (d)(1) through (3) of this section for each maintenance vent.

(1) 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 of §63.2450(e)(2) or (5), as applicable, or a non-flare control device meeting the requirements in

§63.2450(e)(4) and the requirements specified in §63.982(c)(2) of subpart SS until one of the following conditions, as applicable, is met.

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

(ii) 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.

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

(iv) If, after applying best practices to isolate and purge equipment served by a maintenance vent, none of the applicable criterion in paragraphs (d)(1)(i) through (iii) 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.

(2) Except for maintenance vents complying with the alternative in paragraph (d)(1)(iii) of this section, you 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.

(3) For maintenance vents complying with the alternative in paragraph (d)(1)(iii) of this section, you 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.

7. Section 63.2460 is amended by:

a. Revising paragraph (a), paragraph (b)(5) introductory text, paragraph (b)(5)(iii), paragraph (b)(6) introductory text, paragraphs (c)(2)(i) and (ii), (c)(2)(v), and paragraph (c)(6) introductory text;

b. Redesignating Equation 1 to paragraph (c)(6) as Equation 3;

c. Revising paragraphs (c)(9) introductory text, (c)(9)(ii) introductory text, paragraphs (c)(9)(ii)(D), and (c)(9)(iii) and (iv).

The revisions read as follows:

§63.2460 What requirements must I meet for batch process vents?

(a) You must meet each emission limit in Table 2 to this subpart that applies to you, and you must meet each applicable requirement specified in paragraphs (b) and (c) of this section, §63.2492, and §63.2493(a) through (c).

(b) * * *

(5) You may elect to designate the batch process vents within a process as Group 1 and not calculate uncontrolled emissions if you comply with one of the situations in paragraph (b)(5)(i), (ii), or (iii) of this section.

* * * * *

(iii) If you comply with an emission limit using a flare that meets the requirements specified in §§63.987 or 63.2450(e)(5), as applicable.

(6) You may change from Group 2 to Group 1 in accordance with either paragraph (b)(6)(i) or (ii) of this section. Before **[date 60 days after date of publication of final rule in the Federal Register]**, you must comply with the requirements of this section and submit the test report. Beginning on and after **[date 60 days after date of publication of final rule in the Federal Register]**, you must comply with the requirements of this section and submit the performance test report for the demonstration required in §63.1257(b)(8) in accordance with §63.2520(f).

* * * * *

(c) * * *

(2) * * *

(i) To demonstrate initial compliance with a percent reduction emission limit in Table 2 to this subpart FFFF, you must compare the sums of the controlled and uncontrolled emissions for the applicable Group 1 batch process vents within the process, and show that the specified reduction is met. This requirement does not apply if you comply with the emission limits of Table 2 to this subpart FFFF by using a flare that meets the requirements of §63.987 or 63.2450(e)(5), as applicable.

(ii) When you conduct a performance test or design evaluation for a non-flare control device used to control emissions from batch process vents, you must establish emission profiles and conduct the test under worst-case conditions according to § 63.1257(b)(8) instead of under normal operating conditions as specified in § 63.7(e)(1) or the conditions as specified in § 63.2450(g)(6). The requirements in §63.997(e)(1)(i) and (iii) also do not apply for performance tests conducted to determine compliance with the emission limits for batch process vents. For purposes of this subpart FFFF, references in §63.997(b)(1) to “methods specified in §63.997(e)” include the methods specified in §63.1257(b)(8).

*　　*　　*　　*　　*

(v) If a process condenser is used for boiling operations in which HAP (not as an impurity) is heated to the boiling point, you must demonstrate that it is properly operated according to the procedures specified in §63.1257(d)(2)(i)(C)(4)(ii) and (d)(3)(iii)(B), and the demonstration must occur only during the boiling operation. The reference in §63.1257(d)(3)(iii)(B) to the alternative standard in §63.1254(c) means §63.2505 for the purposes of this subpart. As an alternative to measuring the exhaust gas temperature, as required by §63.1257(d)(3)(iii)(B), you may elect to measure the liquid temperature in the receiver.

*　　*　　*　　*　　*

(6) *Outlet concentration correction for supplemental gases.* If you use a control device other than a combustion device to comply with a TOC, organic HAP, or hydrogen halide and halogen HAP outlet concentration emission limit for batch process vents, you must correct the actual concentration for supplemental gases using Equation 3 of this subpart; you may use process knowledge and representative operating data to determine the fraction of the total flow due to supplemental gas.

*　　*　　*　　*　　*

(9) *Requirements for a biofilter.* If you use a biofilter to meet either the 95 percent reduction requirement or outlet concentration requirement specified in Table 2 to this subpart, you must meet the requirements specified in paragraphs (c)(9)(i) through (vi) of this section.

*　　*　　*　　*　　*

(ii) *Performance tests.* To demonstrate initial compliance, you must conduct a performance test according to the procedures in §63.2450(g), §63.997, and paragraphs (c)(9)(ii)(A) through (D) of this section. The design evaluation option for small control devices is not applicable if you use a biofilter.

*   *   *   *   *

(D) Before **[date 60 days after date of publication of final rule in the Federal Register]**, submit a performance test report as specified in §63.999(a)(2)(i) and (ii) and include the records from paragraph (c)(9)(ii)(B) of this section. Beginning on and after **[date 60 days after date of publication of final rule in the Federal Register]**, you must submit a performance test report as specified in §63.2520(f).

(iii) *Monitoring requirements.* Use either a biofilter bed temperature monitoring device (or multiple devices) capable of providing a continuous record or an organic monitoring device capable of providing a continuous record. Comply with the requirements in §63.2450(e)(4), the general requirements for monitoring in §63.996, and keep records of temperature or other parameter monitoring results as specified in §63.998(b) and (c), as applicable. If you monitor temperature, the operating temperature range must be based on only the temperatures measured during the performance test; these data may not be supplemented by engineering assessments or manufacturer's recommendations as otherwise allowed in §63.999(b)(3)(ii)(A). If you establish the operating range (minimum and maximum temperatures) using data from previous performance tests in accordance with §63.996(c)(6), replacement of the biofilter media with the same type of media is not considered a process change under §63.997(b)(1). You may expand your biofilter bed temperature operating range by conducting a repeat performance test that demonstrates compliance with the 95 percent reduction requirement or outlet concentration limit, as applicable.

(iv) *Repeat performance tests.* You must conduct a repeat performance test using the applicable methods specified in §63.2450(g) and §63.997 within 2 years following the previous performance test and within 150 days after each replacement of any portion of the biofilter bed media with a different type of media or each replacement of more than 50 percent (by volume) of the biofilter bed media with the same type of media.

8. Section 63.2465 is amended by revising paragraphs (c) introductory text and (d)(2) to read as follows:

§63.2465 What requirements must I meet for process vents that emit hydrogen halide and halogen HAP or HAP metals?

* * * * *

(c) If collective uncontrolled hydrogen halide and halogen HAP emissions from the process vents within a process are greater than or equal to 1,000 pounds per year (lb/yr), you must comply with the requirements in §63.2450(e)(4) and the requirements of §63.994 and the requirements referenced therein, except as specified in paragraphs (c)(1) through (3) of this section.

* * * * *

(d) * * *

(2) Conduct an initial performance test of each control device that is used to comply with the emission limit for HAP metals specified in Table 3 to this subpart. Conduct the performance test according to the procedures in §63.2450(g) and §63.997. Use Method 29 of appendix A of 40 CFR part 60 to determine the HAP metals at the inlet and outlet of each control device, or use

Method 5 of appendix A of 40 CFR part 60 to determine the total particulate matter (PM) at the inlet and outlet of each control device. You may use ASTM D6784-02 (Reapproved 2008) (incorporated by reference, see § 63.14) as an alternative to Method 29 (portion for mercury only) as a method for measuring mercury concentrations of 0.5 to 100 micrograms per standard cubic meter. You have demonstrated initial compliance if the overall reduction of either HAP metals or total PM from the process is greater than or equal to 97 percent by weight.

* * * * *

9. Section 63.2470 is amended by revising paragraphs (a), (b), (c), and (e)(3) to read as follows:

§63.2470 What requirements must I meet for storage tanks?

(a) You must meet each emission limit in Table 4 to this subpart that applies to your storage tanks, and except as specified in paragraph (b), you must also meet each applicable requirement specified in paragraphs (c) through (e) of this section, §63.2492, and §63.2493(a) through (c).

(b) On and after the compliance dates specified in §63.2445(i), paragraphs (d) and (e) of this section do not apply to storage tanks in ethylene oxide service as defined in §63.2550.

(c) *Exceptions to subparts SS and WW of this part 63.* (1) If you conduct a performance test or design evaluation for a control device used to control emissions only from storage tanks, you must establish operating limits, conduct monitoring, and keep records using the same procedures as required in subpart SS of this part 63 for control devices used to reduce emissions from process vents instead of the procedures specified in §§63.985(c), 63.998(d)(2)(i), and 63.999(b)(2). You must also comply with the requirements in §63.2450(e)(4), as applicable.

(2) Except as specified in paragraph (c)(4) of this section, when the term "storage vessel" is used in subparts SS and WW of this part 63, the term "storage tank," as defined in §63.2550 applies for the purposes of this subpart.

(3) For adsorbers that cannot be regenerated or regenerative adsorbers that are regenerated offsite, you must comply with the monitoring requirements in §63.2450(e)(7) in lieu of §63.995(c).

(4) Beginning no later than the compliance dates specified in §63.2445(i), the exemptions for "vessels storing organic liquids that contain HAP only as impurities" and "pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere" listed in the definition of "storage tank" in §63.2550 do not apply for storage tanks in ethylene oxide service.

*   *   *   *   *

(e) *   *   *

(3) You may elect to set a pressure relief device to a value less than the 2.5 psig required in §63.1253(f)(5) if you provide rationale in your notification of compliance status report explaining why the alternative value is sufficient to prevent breathing losses at all times.

*   *   *   *   *

10. Section 63.2475 is amended by revising paragraph (a) to read as follows:

§63.2475 What requirements must I meet for transfer racks?

(a) You must comply with each emission limit and work practice standard in table 5 to this subpart that applies to your transfer racks, and you must meet each applicable requirement in paragraph (b) of this section.

*   *   *   *   *

11. Section 63.2480 is amended by:

a. Revising paragraph (a), paragraph (b) introductory text, paragraphs (b)(1) and (2), and (b)(5);

b. Adding paragraphs (b)(6) and (7);

c. Revising paragraph (c) introductory text and paragraph (c)(5);

d. Adding paragraphs (c)(10) and (11), (e), and (f).

The revisions and additions read as follows:

§63.2480 What requirements must I meet for equipment leaks?

(a) You must meet each requirement in table 6 to this subpart that applies to your equipment leaks, except as specified in paragraphs (b) through (f) of this section. For each light liquid pump, valve, and connector in ethylene oxide service as defined in §63.2550(i), you must also meet the applicable requirements specified in §63.2492 and §63.2493(d) and (e).

(b) Except as specified in paragraphs (b)(6) and (7) of this section, if you comply with either subpart H or subpart UU of this part 63, you may elect to comply with the provisions in paragraphs (b)(1) through (5) of this section as an alternative to the referenced provisions in subpart H or subpart UU of this part.

(1) The requirements for pressure testing in §63.178(b) or §63.1036(b) may be applied to all processes, not just batch processes.

(2) For the purposes of this subpart, pressure testing for leaks in accordance with §63.178(b) or §63.1036(b) is not required after reconfiguration of an equipment train if flexible hose connections are the only disturbed equipment.

*   *   *   *   *

(5) Except as specified in paragraph (b)(6) of this section, for pumps in light liquid service in an MCPU that has no continuous process vents and is part of an existing source, you may elect to consider the leak definition that defines a leak to be 10,000 parts per million (ppm) or greater as an alternative to the values specified in §63.1026(b)(2)(i) through (iii) or §63.163(b)(2).

(6) Beginning no later than the compliance dates specified in §63.2445(h), paragraph (b)(5) of this section no longer applies to pumps in light liquid service. Instead, for all pumps in light liquid service in an MCPU, the instrument reading that defines a leak and requires repair is 1,000 ppmv or greater.

(7) For each piece of equipment that is added to an affected source after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, and for each piece of equipment that replaces equipment at an affected source after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, you must initially monitor for leaks within 30 days after initial startup of the equipment.

(c) Except as specified in paragraphs (c)(10) and (11) of this section, if you comply with 40 CFR part 65, subpart F, you may elect to comply with the provisions in paragraphs (c)(1) through (9) of this section as an alternative to the referenced provisions in 40 CFR part 65, subpart F.

* * * * *

(5) Except as specified in paragraph (c)(10) of this section, for pumps in light liquid service in an MCPU that has no continuous process vents and is part of an existing source, you may elect to consider the leak definition that defines a leak to be 10,000 ppm or greater as an alternative to the values specified in §65.107(b)(2)(i) through (iii).

*   *   *   *   *

(10) Beginning no later than the compliance dates specified in §63.2445(h), paragraph (c)(5) of this section no longer applies to pumps in light liquid service. Instead, for all pumps in light liquid service in an MCPU, the instrument reading that defines a leak and requires repair is 1,000 ppmv or greater.

(11) For each piece of equipment that is added to an affected source after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, and for each piece of equipment that replaces equipment at an affected source after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, you must initially monitor for leaks within 30 days after initial startup of the equipment.

*   *   *   *   *

(e) Beginning no later than the compliance dates specified in §63.2445(g), except as specified in paragraph (e)(4) of this section, you must comply with the requirements specified in paragraphs (e)(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, §63.165 of subpart H, or §65.111 of subpart F. Except as specified in paragraphs (e)(4) and (5) of this section, you must also comply with the requirements specified in paragraphs (e)(3), (6), (7), and (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, §63.180(c) of subpart H, or §65.104(b) of subpart F.

(2) *Pressure release requirements.* For pressure relief devices in organic HAP gas or vapor service, you must comply with the applicable requirements paragraphs (e)(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, §63.180(c) of subpart H, or §65.104(b) of subpart F, 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 (e)(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. You must conduct instrument monitoring, as specified in §63.1023(b) of subpart UU, §63.180(c) of subpart H, or §65.104(b) of subpart F, 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.

(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. You must not initiate startup of the equipment served by the rupture disk until the rupture disc is replaced. You must conduct instrument monitoring, as specified in §63.1023(b) of subpart UU, §63.180(c) of subpart H, or §65.104(b) of subpart F, 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.

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

(i) You 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) You 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, you must perform root cause analysis and corrective action analysis according to the requirement in paragraph (e)(6) of this section and implement corrective actions according to the requirements in paragraph (e)(7) of this section. You must also calculate the quantity of organic HAP released during each pressure release event and report this quantity as required in §63.2520(e)(15). 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) You must determine the total number of release events that occurred during the calendar year for each affected pressure relief device separately. You 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 §63.2550.

(v) Except for pressure relief devices described in paragraphs (e)(4) and (5) of this section, the following release events from an affected pressure relief device are a deviation 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, to the fuel gas system, or to a drain system, then you are not required to comply with paragraph (e)(1), (2), or (3) of this section.

(ii) Before the compliance dates specified in §63.2445(g), both the closed vent system and control device (if applicable) referenced in paragraph (e)(4)(i) of this section must meet the applicable requirements specified in §63.982(b) and (c)(2) of subpart SS. Beginning no later than the compliance dates specified in §63.2445(g), both the closed vent system and control device (if applicable) referenced in paragraph (e)(4)(i) of this section must meet the applicable requirements specified in §63.982(c)(2), §63.983, and §63.2450(e)(4) through (6).

(iii) The drain system (if applicable) referenced in paragraph (e)(4)(i) must meet the applicable requirements specified in §63.2485(e).

(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 (e)(3) of this section.

(i) Pressure relief devices in heavy liquid service, as defined in §63.1020 of subpart UU or §65.103(f) of subpart F.

(ii) Thermal expansion relief valves.

(iii) Pressure relief devices designed with a set relief pressure of less than 2.5 psig.

(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, to the fuel gas system, or to a 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, to the fuel gas system, or to a 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 (e)(6)(i) through (iii) 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 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 §63.2550.

(iii) Except as provided in paragraphs (e)(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 initially 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.* You must conduct a root cause analysis and corrective action analysis as specified in paragraphs (e)(3)(iii) and (e)(6) of this section, and you must implement the corrective action(s) identified in the corrective action analysis in accordance with the applicable requirements in paragraphs (e)(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 you conclude that no corrective action should be implemented, you 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, you 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, you 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 affected sources that commenced construction or reconstruction on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, you 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 **[date 3 years after date of publication of final rule in the Federal Register]**. For affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, you 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.

(f) Beginning no later than the compliance dates specified in §63.2445(g), the referenced provisions specified in paragraphs (f)(1) through (15) of this section do not apply when demonstrating compliance with this section.

(1) §63.163(c)(3) of subpart H.

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

(3) §63.1026(b)(3) of subpart UU.

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

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

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

(7) The second sentence of §65.105(f)(4)(i) of subpart F.

(8) §65.107(b)(3) of subpart F.

(9) The phrase "(except periods of start-up, shutdown, or malfunction)" from §65.107(e)(1)(ii)(A) of subpart F.

(10) The phrase "(except during periods of start-up, shutdown, or malfunction)" from §65.109(e)(1)(i)(A) of subpart F.

(11) The phrase "(except during periods of start-up, shutdown, or malfunction)" from §65.112(b)(1) of subpart F.

(12) The last sentence of §65.115(b)(1) of subpart F.

(13) The last sentence of §65.115(b)(2) of subpart F.

(14) The phrase “Except for pressure relief devices needed for safety purposes, low leg drains, high point bleeds, analyzer vents, and open-ended valves or lines” in §65.143(a)(3) of subpart G.

(15) For flares complying with §63.2450(e)(5), the following provisions do not apply:

(i) §63.172(d) of subpart H;

(ii) §63.180(e) of subpart H;

(iii) §63.181(g)(1)(iii) of subpart H;

(iv) The phrase “including periods when a flare pilot light system does not have a flame” from §63.181(g)(2)(i) of subpart H;

(v) §63.1034(b)(2)(iii) of subpart UU; and

(vi) §65.115(b)(2) of subpart F.

12. Section 63.2485 is amended by:

a. Revising paragraphs (a) and (f);

b. Adding paragraph (h)(4);

c. Revising paragraph (i)(2)(ii);

d. Adding paragraph (i)(2)(iii);

e. Revising paragraphs (k) introductory text, (n)(2) introductory text, (n)(2)(ii) and (n)(2)(iv)(A);

f. Redesignating Equation 1 to paragraph (n)(2) as Equation 4;

g. Adding paragraph (n)(2)(vii);

h. Revising paragraphs (n)(4) and (o);

i. Adding paragraphs (p) and (q).

The revisions and additions read as follows:

§63.2485 What requirements must I meet for wastewater streams and liquid streams in open systems within an MCPU?

(a) You must meet each requirement in table 7 to this subpart that applies to your wastewater streams and liquid streams in open systems within an MCPU, except as specified in paragraphs (b) through (q) of this section.

* * * * *

(f) *Closed-vent system requirements.* Except as specified in §63.2450(e)(6), when §63.148(k) refers to closed vent systems that are subject to the requirements of § 63.172, the requirements of either § 63.172 or §63.1034 apply for the purposes of this subpart.

* * * * *

(h) * * *

(4) As an alternative to using EPA Method 624 as specified in §63.144(b)(5)(i)(C), you may use ASTM D5790-95 (2012) (incorporated by reference, see § 63.14) for the analysis of total organic HAP in wastewater samples. If you choose to use ASTM D5790-95 (2012), then you must also use the sampling procedures of EPA Method 25D or an equivalent method.

(i) * * *

(2) * * *

(ii) The transferee must treat the wastewater stream or residual in a biological treatment unit in accordance with the requirement in paragraph (i)(2)(iii) of this section and the requirements of §§63.138 and 63.145 and the requirements referenced therein.

(iii) Beginning no later than the compliance dates specified in §63.2445(g), the requirement of §63.145(a)(3) no longer applies. Instead, the transferee must comply with the conditions specified in 63.2450(g)(6).

*   *   *   *   *

(k) The requirement to correct outlet concentrations from combustion devices to 3 percent oxygen in §§63.139(c)(1)(ii) and 63.145(i)(6) applies only if supplemental gases are combined with a vent stream from a Group 1 wastewater stream. If emissions are controlled with a vapor recovery system as specified in §63.139(c)(2), you must correct for supplemental gases as specified in §63.2460(c)(6).

*   *   *   *   *

(n) *   *   *

(2) Calculate the destruction efficiency of the biological treatment unit using Equation 4 of this subpart in accordance with the procedures described in paragraphs (n)(2)(i) through (viii) of this section. You have demonstrated initial compliance if E is greater than or equal to 90 percent.

*   *   *   *   *

(ii) Except as specified in paragraph (n)(2)(vii) of this section, conduct the demonstration under representative process unit and treatment unit operating conditions in accordance with § 63.145(a)(3) and (4).

*   *   *   *   *

(iv) *   *   *

(A) If the biological treatment process meets both of the requirements specified in §63.145(h)(1)(i) and (ii), you may elect to replace the F_{bio} term in Equation 4 of this subpart with the numeral “1.”

*   *   *   *   *

(vii) Beginning no later than the compliance dates specified in §63.2445(g), the requirement of §63.145(a)(3) no longer applies. Instead, you must comply with the conditions specified in 63.2450(g)(6).

*   *   *   *   *

(4) For any wastewater streams that are Group 1 for both PSHAP and SHAP, you may elect to meet the requirements specified in table 7 to this subpart for the PSHAP and then comply with paragraphs (n)(1) through (3) of this section for the SHAP in the wastewater system. You may determine the SHAP mass removal rate, in kg/hr, in treatment units that are used to meet the requirements for PSHAP and add this amount to both the numerator and denominator in Equation 4 of this subpart.

(o) *Compliance records.* Except as specified in paragraph (p) of this section, for each CPMS used to monitor a nonflare control device for wastewater emissions, you must keep records as specified in §63.998(c)(1) in addition to the records required in §63.147(d).

(p) *Compliance records after date of compliance.* Beginning no later than the compliance dates specified in §63.2445(g), paragraph (o) of this section no longer applies. Instead, for each CPMS used to monitor a nonflare control device for wastewater emissions, you must keep records as specified in §63.998(c)(1) in addition to the records required in §63.147(d), except that the provisions of §63.998(c)(1)(ii)(D), (E), (F), and (G) do not apply.

(q) *Startup, shutdown, and malfunction referenced provisions.* Beginning no later than the compliance dates specified in §63.2445(g), the referenced provisions specified in paragraphs (q)(1) through (5) of this section do not apply when demonstrating compliance with this section.

(1) §63.105(d) and (e).

(2) §63.132(b)(3)(i)(B).

(3) §63.132(f)(2).

(4) §63.148(f)(3).

(5) For flares complying with §63.2450(e)(5), the following provisions do not apply:

(i) §63.139(c)(3);

(ii) §63.139(d)(2)(vii)(3);

(iii) §63.145(j);

(iv) §63.146(b)(7)(i);

(v) §63.147(d)(1); and

(vi) §63.1034(b)(2)(iii).

13. Revise § 63.2490 to read as follows:

§63.2490 What requirements must I meet for heat exchange systems?

(a) You must comply with each requirement in Table 10 to this subpart that applies to your heat exchange systems, except as specified in paragraphs (b) through (d) of this section.

(b) Except as specified in paragraph (d) of this section, if you comply with the requirements of §63.104 as specified in Table 10 to this subpart, then the phrase “a chemical manufacturing process unit meeting the conditions of §63.100 (b)(1) through (b)(3) of this section” in §63.104(a) means “an MCPU meeting the conditions of §63.2435” for the purposes of this subpart.

(c) Except as specified in paragraph (d) of this section, if you comply with the requirements of §63.104 as specified in Table 10 to this subpart, then the reference to §63.100(c) in §63.104(a) does not apply for the purposes of this subpart.

(d) Beginning no later than the compliance dates specified in §63.2445(g), the requirements of §63.104 as specified in Table 10 to this subpart and paragraphs (b) and (c) of this section no longer apply. Instead, you must monitor the cooling water for the presence of total strippable hydrocarbon concentration (as methane) that indicate a leak according to paragraph (d)(1) of this section, and if you detect a leak, then you must repair it according to paragraphs (d)(2) and (3) of this section, unless repair is delayed according to paragraph (d)(4) of this section. At any time before the compliance dates specified in §63.2445(g), you may choose to comply with the requirements in this paragraph in lieu of the requirements of §63.104 as specified in Table 10 to this subpart and paragraphs (b) and (c) of this section. The requirements in this paragraph do not apply to heat exchange systems that have a maximum cooling water flow rate of 10 gallons per minute or less.

(1) You must perform monitoring to identify leaks of total strippable hydrocarbon concentration (as methane) from each heat exchange system subject to the requirements of this subpart according to the procedures in paragraphs (d)(1)(i) through (v) of this section.

(i) *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 (d)(1)(i)(A) or (B) of this section.

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

(B) 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).

(ii) *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 (d)(1)(ii)(A) of this section. You may also elect to collect and analyze an additional sample from the location(s) described in paragraph (d)(1)(ii)(B) of this section.

(A) 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 40,000 gallons per minute.

(B) 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.

(iii) *Monitoring method.* 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” Revision Number One, dated January 2003, Sampling Procedures Manual, appendix P: Cooling Tower Monitoring, prepared by Texas Commission on Environmental Quality, January 31, 2003 (incorporated by reference —see

§63.14) using a flame ionization detector (FID) analyzer for on-site determination as described in Section 6.1 of the Modified El Paso Method.

(iv*) Monitoring frequency and leak action level.* For each heat exchange system, you must initially monitor monthly for 6-months beginning upon startup and monitor quarterly thereafter using a leak action level defined as a total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 ppmv. If a leak is detected as specified in paragraph (d)(1)(v) of this section, then you must monitor monthly until the leak has been repaired according to the requirements in paragraph (d)(2) or (3) of this section. Once the leak has been repaired according to the requirements in paragraph (d)(2) or (3) of this section, quarterly monitoring for the heat exchange system may resume. The monitoring frequencies specified in this paragraph also apply to the inlet water feed line for a once-through heat exchange system, if monitoring of the inlet water feed is elected as provided in paragraph (d)(1)(ii)(B) of this section.

(v) *Leak definition.* A leak is defined as described in paragraph (d)(1)(v)(A) or (B) of this section, as applicable.

(A) For once-through heat exchange systems for which the inlet water feed is monitored as described in paragraph (d)(1)(ii)(B) of this section, a leak is detected if the difference in the measurement value of the sample taken from a location specified in paragraph (d)(1)(ii)(A) of this section and the measurement value of the corresponding sample taken from the location specified in paragraph (d)(1)(ii)(B) of this section equals or exceeds the leak action level.

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

(2) If a leak is detected using the methods described in paragraph (d)(1) of this section, you must repair the leak to reduce the measured concentration 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 paragraph (d)(4) of this section. Repair must include re-monitoring at the monitoring location where the leak was identified according to the method specified in paragraph (d)(1)(iii) of this section to verify that the measured total strippable hydrocarbon concentration is below the applicable leak action level. Repair may also include performing the additional monitoring in paragraph (d)(3) 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:

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

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

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

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

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

(3) If you detect a leak when monitoring a cooling tower return line under paragraph (d)(1)(i)(A) of this section, 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 paragraph (d)(1)(i)(B) of this section. If no leaks are detected when monitoring according to the requirements of paragraph (d)(1)(i)(B) of this section, the heat

exchange system is considered to have met the repair requirements through re-monitoring of the heat exchange system, as provided in paragraph (d)(2) of this section.

(4) You may delay repair when one of the conditions in paragraph (d)(4)(i) or (ii) of this section is met and the leak is less than the delay of repair action level specified in paragraph (d)(4)(iii) 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.

(i) If the repair is technically infeasible without a shutdown and the total strippable hydrocarbon concentration 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.

(ii) If the necessary equipment, parts, or personnel are not available and the total strippable hydrocarbon concentration 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.

(iii) The delay of repair action level is a total strippable hydrocarbon concentration (as methane) in the stripping gas of 62 ppmv. The delay of repair action level is assessed as described in paragraph (d)(4)(iii)(A) or (B) of this section, as applicable.

(A) For once-through heat exchange systems for which the inlet water feed is monitored as described in paragraph (d)(1)(ii)(B) of this section, the delay of repair action level is exceeded if the difference in the measurement value of the sample taken from a location specified in paragraph (d)(1)(ii)(A) of this section and the measurement value of the corresponding sample taken from the location specified in paragraph (d)(1)(ii)(B) of this section equals or exceeds the delay of repair action level.

(B) 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 paragraph (d)(1)(i)(A), (B), or (d)(1)(ii)(A) of this section equals or exceeds the delay of repair action level.

14. Section 63.2492 is added to read as follows:

§63.2492 How do I determine whether my process vent, storage tank, or equipment is in ethylene oxide service?

To determine if process vents, storage tanks, and equipment leaks are in ethylene oxide service as defined in §63.2550(i), you must comply with the requirements in paragraphs (a) through (c) of this section, as applicable.

(a) For each batch process vent or continuous process vent stream, you must measure the flow rate and concentration of ethylene oxide of each process vent as specified in paragraphs (a)(1) through (5) of this section.

(1) Measurements must be made prior to any dilution of the vent streams.

(2) Measurements may be made on the combined vent streams at an MCPU or for each separate vent stream.

(3) Method 1 or 1A of 40 CFR part 60, appendix A-1, as appropriate, must be used for the selection of the sampling sites. For vents smaller than 0.10 meter in diameter, sample at one point at the center of the duct.

(4) The gas volumetric flow rate must be determined using Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A-1 and A-2, as appropriate.

(5) The concentration of ethylene oxide must be determined using Method 18 of appendix A-6 of 40 CFR part 60 or Method 320 of appendix A to 40 CFR part 63.

(b) For storage tanks, you must measure the concentration of ethylene oxide of the fluid stored in the storage tanks using Method 624.1 of 40 CFR part 136 or preparation by Method 5031 and analysis by Method 8260D in the SW-846 Compendium. In lieu of preparation by SW-846 Method 5031, you may use SW-846 Method 5030B, as long as: you do not use a preservative in the collected sample; you store the sample with minimal headspace as cold as possible and at least below 4 degrees C; and you analyze the sample as soon as possible, but in no case longer than 7 days from the time the sample was collected. If you are collecting a sample from a pressure vessel, you must maintain the sample under pressure both during and following sampling.

(c) For equipment leaks, you must comply with the requirements in paragraphs (c)(1) through (4) of this section.

(1) Each piece of equipment within an MCPU that can reasonably be expected to contain equipment in ethylene oxide service is presumed to be in ethylene oxide service unless an owner or operator demonstrates that the piece of equipment is not in ethylene oxide service. For a piece of equipment to be considered not in ethylene oxide service, it must be determined that the percent ethylene oxide content of the process fluid that is contained in or contacts equipment can

be reasonably expected to not exceed 0.1 percent by weight on an annual average basis. For purposes of determining the percent ethylene oxide content of the process fluid, you must use Method 18 of 40 CFR part 60, appendix A-6 for gaseous process fluid, and Method 624.1 of 40 CFR part 136 or preparation by Method 5031 and analysis by Method 8260D in the SW-846 Compendium for liquid process fluid. In lieu of preparation by SW-846 Method 5031, you may use SW-846 Method 5030B, as long as: you do not use a preservative in the collected sample; you store the sample with minimal headspace as cold as possible and at least below 4 degrees C; and you analyze the sample as soon as possible, but in no case longer than 7 days from the time the sample was collected.

(2) Unless specified by the Administrator, you may use good engineering judgment rather than the procedures specified in paragraph (c)(1) of this section to determine that the percent ethylene oxide content of the process fluid that is contained in or contacts equipment does not exceed 0.1 percent by weight.

(3) You may revise your determination for whether a piece of equipment is in ethylene oxide service by following the procedures in paragraph (c)(1) of this section, or by documenting that a change in the process or raw materials no longer causes the equipment to be in ethylene oxide service.

(4) Samples used in determining the ethylene oxide content must be representative of the process fluid that is contained in or contacts the equipment.

15. Section 63.2493 is added to read as follows:

§63.2493 What requirements must I meet for process vents, storage tanks, or equipment that are in ethylene oxide service?

This section applies beginning no later than the compliance dates specified in §63.2445(i). In order to demonstrate compliance with the emission limits and work practice standards specified in Tables 1, 2, and 4 to this subpart for process vents and storage tanks in ethylene oxide service, you must meet the requirements specified in paragraphs (a) through (c) of this section. In order to demonstrate compliance with the requirements specified in Table 6 to this subpart for equipment in ethylene oxide service, you must meet the requirements specified in paragraphs (d) and (e) of this section.

(a) For initial compliance, you must comply with paragraphs (a)(1) through (4) of this section, as applicable.

(1) If you choose to reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a flare as specified in table 1, 2, or 4 to this subpart, then you must comply with §63.2450(e)(4) and (6) and the requirements in §63.983, and you must conduct the initial visible emissions demonstration required by §63.670(h) of subpart CC as specified in §63.2450(e)(5).

(2) If you choose to reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a non-flare control device that reduces ethylene oxide by greater than or equal to 99.9 percent by weight as specified in table 1, 2, or 4 to this subpart, then you must comply with §63.2450(e)(4) and (6) and the requirements in §63.983, and you must comply with paragraphs (a)(2)(i) through (viii) of this section.

(i) Conduct an initial performance test of the control device that is used to comply with the percent reduction requirement at the inlet and outlet of the control device.

(ii) Conduct the performance test according to the procedures in §63.997 and §63.2450(g). Use Method 18 of appendix A-6 of 40 CFR part 60 or Method 320 of appendix A to 40 CFR part 63 to determine the ethylene oxide concentration. Use Method 1 or 1A of appendix A-1 of 40 CFR part 60 to select the sampling sites at each sampling location. Determine the gas volumetric flowrate using Method 2, 2A, 2C, or 2D of appendix A-2 of 40 CFR part 60. Use Method 4 of appendix A-3 of 40 CFR part 60 to convert the volumetric flowrate to a dry basis.

(iii) Calculate the mass emission rate of ethylene oxide entering the control device and exiting the control device using Equations 5 and 6 of this subpart.

$$E_{EtO,inlet} = K\ C_{EtO,inlet}\ M_{EtO}\ Q_{inlet} \qquad \text{(Eq. 5)}$$

$$E_{EtO,outlet} = K\ C_{EtO,outlet}\ M_{EtO}\ Q_{outlet} \qquad \text{(Eq. 6)}$$

Where:

$E_{EtO,inlet}$, $E_{EtO,outlet}$ = Mass rate of ethylene oxide at the inlet and outlet of the control device, respectively, kilogram per hour.

$C_{EtO,inlet}$, $C_{EtO,outlet}$ = Concentration of ethylene oxide in the gas stream at the inlet and outlet of the control device, respectively, dry basis, parts per million by volume.

M_{EtO} = Molecular weight of ethylene oxide, 44.05 grams per gram-mole.

Q_{inlet}, Q_{outlet} = Flow rate of the gas stream at the inlet and outlet of the control device, respectively, dry standard cubic meter per minute.

K = Constant, 2.494 × 10−6 (parts per million)−1 (gram-mole per standard cubic meter) (kilogram per gram) (minutes per hour), where standard temperature (gram-mole per standard cubic meter) is 20 °C.

(iv) Calculate the percent reduction from the control device using equation 7 of this subpart. You have demonstrated initial compliance if the overall reduction of ethylene oxide is greater than or equal to 99.9 percent by weight.

$$\text{Percent reduction} = (E_{EtO,inlet} - E_{EtO,outlet})/E_{EtO,inlet} * 100 \qquad \text{(Eq.7)}$$

Where:

$E_{EtO,inlet}$, $E_{EtO,outlet}$ = Mass rate of ethylene oxide at the inlet and outlet of the control device, respectively, kilogram per hour, calculated using Equations 5 and 6 of this subpart.

(v) If a new control device is installed, then conduct a performance test of the new device following the procedures in paragraphs (a)(2)(i) through (iv) of this section.

(vi) If you vent emissions through a closed-vent system to a scrubber, then you must establish operating parameter limits by monitoring the operating parameters specified in paragraphs (a)(2)(vi)(A) through (E) of this section during the performance test.

(A) Scrubber liquid-to-gas ratio (L/G), determined from the total scrubber liquid inlet flow rate and the exit gas flow rate. Determine the average L/G during the performance test as the average of the test run averages.

(B) Scrubber liquid pH of the liquid in the reactant tank. The pH may be measured at any point between the discharge from the scrubber column and the inlet to the reactant tank. Determine the average pH during the performance test as the average of the test run averages.

(C) Pressure drop of the scrubber column. Determine the average pressure drop during the performance test as the average of the test run averages.

(D) Temperature of the water entering the scrubber column. The temperature may be measured at any point after the heat exchanger and prior to entering the top of the scrubber column. Determine the average inlet water temperature as the average of the test run averages.

(E) Liquid feed pressure to the wet scrubber column. Determine the average liquid feed pressure as the average of the test run averages.

(vii) If you vent emissions through a closed-vent system to a thermal oxidizer, then you must establish operating parameter limits by monitoring the operating parameters specified in paragraphs (a)(2)(vii)(A) and (B) of this section during the performance test.

(A) Combustion chamber temperature. Determine the average combustion chamber temperature during the performance test as the average of the test run averages.

(B) Flue gas flow rate. Determine the average flue gas flow rate during the performance test as the average of the test run averages.

(viii) If you vent emissions through a closed-vent system to a control device other than a flare, scrubber, or thermal oxidizer, then you must notify the Administrator of the operating parameters that you plan to monitor during the performance test prior to establishing operating parameter limits for the control device.

(3) If you choose to reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a non-flare control device that reduces ethylene oxide to less than 1 ppmv as specified in table 1, 2, or 4 to this subpart, then you must comply with §63.2450(e)(4) and (6) and the requirements in §63.983, and you must comply with either paragraph (a)(3)(i) or (ii) of this section.

(i) Install an FTIR CEMS meeting the requirements of Performance Specification 15 to continuously monitor the ethylene oxide concentration at the exit of the control device. Comply with the requirements specified in §63.2450(j) for your CEMS.

(ii) If you do not install a CEMS under paragraph (a)(3)(i) of this section, you must comply with paragraphs (a)(3)(ii)(A) through (C) of this section.

(A) Conduct an initial performance test of the control device that is used to comply with the concentration requirement at the outlet of the control device.

(B) Conduct the performance test according to the procedures in §63.997 and §63.2450(g). Use Method 18 of appendix A-6 of 40 CFR part 60 or Method 320 of appendix A to 40 CFR part 63 to determine the ethylene oxide concentration. You have demonstrated initial compliance if the ethylene oxide concentration is less than 1 ppmv.

(C) Comply with the requirements specified in paragraphs (a)(2)(v) through (viii) of this section, as applicable.

(4) If you choose to reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a non-flare control device that reduces ethylene oxide to less than 5 pounds per year for all combined process vents as specified in table 1 or 2 to this subpart, then you must comply with §63.2450(e)(4) and (6) and the requirements in §63.983, and you must comply with paragraphs (a)(4)(i) through (iv) of this section.

(i) Conduct an initial performance test of the control device that is used to comply with the mass emission limit requirement at the outlet of the control device.

(ii) Conduct the performance test according to the procedures in §63.997 and §63.2450(g). Use Method 18 of appendix A-6 of 40 CFR part 60 or Method 320 of appendix A to 40 CFR part 63 to determine the ethylene oxide concentration. Use Method 1 or 1A of appendix A-1 of 40 CFR part 60 to select the sampling site. Determine the gas volumetric flowrate using Method 2, 2A, 2C, or 2D of appendix A-2 of 40 CFR part 60. Use Method 4 of appendix A-3 of 40 CFR part 60 to convert the volumetric flowrate to a dry basis.

(iii) Calculate the mass emission rate of ethylene oxide exiting the control device using Equation 6 of this subpart. You have demonstrated initial compliance if the ethylene oxide from all process vents (controlled and uncontrolled) is less than 5 pounds per year when combined.

(iv) Comply with the requirements specified in paragraphs (a)(2)(v) through (viii) of this section, as applicable.

(b) For continuous compliance, you must comply with paragraphs (b)(1) through (6) of this section, as applicable.

(1) If you choose to reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a flare as specified in table 1, 2, or 4 to this subpart, then you must comply with the requirements in §§63.983 and 63.2450(e)(4) through (6).

(2) Continuously monitor the ethylene oxide concentration at the exit of the control device using an FTIR CEMS meeting the requirements of Performance Specification 15 and §63.2450(j). If you use an FTIR CEMS, you do not need to conduct the performance testing required in paragraph (b)(3) of this section or the operating parameter monitoring required in paragraphs (b)(4) through (6) of this section.

(3) Conduct a performance test no later than 60 months after the previous performance test and reestablish operating parameter limits following the procedures in paragraph (a)(2) through (4) of this section. The Administrator may request a repeat performance test at any time.

(4) If you vent emissions through a closed-vent system to a scrubber, then you must comply with §63.2450(e)(4) and (6) and the requirements in §63.983, and you must meet the operating parameter limits specified in paragraphs (b)(4)(i) through (v) of this section.

(i) Minimum scrubber liquid-to-gas ratio (L/G), equal to the average L/G measured during the most recent performance test. Determine total scrubber liquid inlet flow rate with a flow sensor with a minimum accuracy of at least ±5 percent over the normal range of flow measured, or 1.9 liters per minute (0.5 gallons per minute), whichever is greater. Determine exit gas flow rate with a flow sensor with a minimum accuracy of at least ±5 percent over the normal range of flow measured, or 280 liters per minute (10 cubic feet per minute), whichever is greater.

Compliance with the minimum L/G operating limit must be determined continuously on an instantaneous basis.

(ii) Maximum scrubber liquid pH of the liquid in the reactant tank, equal to the average pH measured during the most recent performance test. Compliance with the pH operating limit must be determined continuously on an instantaneous basis. Use a pH sensor with a minimum accuracy of ±0.2 pH units.

(iii) Maximum pressure drop across the scrubber column, equal to the average pressure drop measured during the most recent performance test. Compliance with the pressure drop operating limit must be determined continuously on an instantaneous basis. Use pressure sensors with a minimum accuracy of ±5 percent over the normal operating range or 0.12 kilopascals, whichever is greater.

(iv) Maximum temperature of the water entering the scrubber column, equal to the average temperature measured during the most recent performance test. Compliance with the inlet water temperature operating limit must be determined continuously on an instantaneous basis. Use a temperature sensor with a minimum accuracy of ±1 percent over the normal range of the temperature measured, expressed in degrees Celsius, or 2.8 degrees Celsius, whichever is greater.

(v) Minimum liquid feed pressure to the scrubber column, equal to the average feed pressure measured during the most recent performance test. Compliance with the liquid feed pressure operating limit must be determined continuously on an instantaneous basis. Use a pressure sensor with a minimum accuracy of ±5 percent over the normal operating range or 0.12 kilopascals, whichever is greater.

(5) If you vent emissions through a closed-vent system to a thermal oxidizer, then you must comply with §63.2450(e)(4) and (6) and the requirements in §63.983, and you must meet the operating parameter limits specified in paragraphs (b)(5)(i) and (ii) of this section and the requirements in paragraph (b)(5)(iii) of this section.

(i) Minimum combustion chamber temperature, equal to the average combustion chamber temperature measured during the most recent performance test. Determine combustion chamber temperature with a temperature sensor with a minimum accuracy of at least ±1 percent over the normal range of temperature measured, expressed in degrees Celsius, or 2.8 degrees Celsius, whichever is greater. Compliance with the minimum combustion chamber temperature operating limit must be determined continuously on an instantaneous basis.

(ii) Maximum flue gas flow rate, equal to the average flue gas flow rate measured during the most recent performance test. Determine flue gas flow rate with a flow sensor with a minimum accuracy of at least ±5 percent over the normal range of flow measured, or 280 liters per minute (10 cubic feet per minute), whichever is greater. Compliance with the maximum flue gas flow rate operating limit must be determined continuously on an instantaneous basis.

(iii) You must maintain the thermal oxidizer in accordance with good combustion practices that ensure proper combustion. Good combustion practices include, but are not limited to, proper burner maintenance, proper burner alignment, proper fuel to air distribution and mixing, routine inspection, and preventative maintenance.

(6) If you vent emissions through a closed-vent system to a control device other than a flare, scrubber, or thermal oxidizer, then you must comply with §63.2450(e)(4) and (6) and the requirements in §63.983, and you must monitor the operating parameters identified in paragraph (a)(2)(viii) of this section and meet the established operating parameter limits to ensure

continuous compliance. The frequency of monitoring and averaging time will be determined based upon the information provided to the Administrator.

(c) *Pressure Vessels.* If you have a storage tank in ethylene oxide service that is considered a pressure vessel as defined in as defined in §63.2550(i), then you must operate and maintain the pressure vessel, as specified in paragraphs (c)(1) through (5) of this section.

(1) The pressure vessel must be designed to operate with no detectable emissions at all times.

(2) Monitor each point on the pressure vessel through which ethylene oxide could potentially be emitted by conducting initial and annual performance tests using Method 21 of 40 CFR part 60, appendix A–7.

(3) Each instrument reading greater than 500 ppmv is a deviation.

(4) Estimate the flow rate and total regulated material emissions from the defect. Assume the pressure vessel has been emitting for half of the time since the last performance test, unless other information supports a different assumption.

(5) Whenever ethylene oxide is in the pressure vessel, you must operate the pressure vessel as a closed system that vents through a closed vent system to a control device as specified in paragraphs (c)(5)(i) through (iii) of this section, as applicable.

(i) For closed vent systems, comply with §63.2450(e)(4) and (6) and the requirements in §63.983.

(ii) For a non-flare control device, comply with requirements as specified in paragraph (b) of this section.

(iii) For a flare, comply with the requirements of §63.2450(e)(5).

Option 1 for Paragraph (d)

(d) *Equipment in ethylene oxide service.* Except as specified in paragraphs (d)(1) through (4) and (e) of this section, for equipment in ethylene oxide service as defined in §63.2550(i), you must comply with the requirements of subpart UU or subpart H of this part 63, or 40 CFR part 65, subpart F.

(1) For pumps in ethylene oxide service, you must comply with the requirements in paragraphs (d)(1)(i) through (iii) of this section.

(i) The instrument reading that defines a leak for pumps is 1,000 parts per million or greater.

(ii) The monitoring period for pumps is monthly.

(iii) When a leak is detected, it must be repaired as soon as practicable, but not later than 15 calendar days after it is detected.

(2) For connectors in ethylene oxide service, you must comply with the requirements in paragraphs (d)(2)(i) through (iii) of this section.

(i) The instrument reading that defines a leak for connectors is 500 parts per million or greater.

(ii) The monitoring period for connectors is once every 12 months.

(iii) When a leak is detected, it must be repaired as soon as practicable, but not later than 15 calendar days after it is detected.

(3) For each light liquid pump or connector in ethylene oxide service that is added to an affected source, and for each light liquid pump or connector in ethylene oxide service that replaces a light liquid pump or connector in ethylene oxide service, you must initially monitor for leaks within 5 days after initial startup of the equipment.

(4) Pressure relief devices in ethylene oxide service must not vent directly to atmosphere.

Option 2 for Paragraph (d)

(d) *Equipment in ethylene oxide service.* Except as specified in paragraphs (d)(1) through (5) and (e) of this section, for equipment in ethylene oxide service as defined in §63.2550(i), you must comply with the requirements of subpart UU or subpart H of this part 63, or 40 CFR part 65, subpart F.

(1) Except as specified in paragraph (d)(3) of this section, for pumps in ethylene oxide service, you must comply with the requirements in paragraphs (d)(1)(i) through (iii) of this section.

(i) The instrument reading that defines a leak for pumps is 1,000 parts per million or greater.

(ii) The monitoring period for pumps is monthly.

(iii) When a leak is detected, it must be repaired as soon as practicable, but not later than 15 calendar days after it is detected.

(2) Except as specified in paragraph (d)(3) of this section, for connectors in ethylene oxide service, you must comply with the requirements in paragraphs (d)(2)(i) through (iii) of this section.

(i) The instrument reading that defines a leak for connectors is 500 parts per million or greater.

(ii) The monitoring period for connectors is once every 12 months.

(iii) When a leak is detected, it must be repaired as soon as practicable, but not later than 15 calendar days after it is detected.

(3) If you operate an MCPU at the facility commonly called Huntsman Performance at 5451 Jefferson Chemical Road in Conroe, Texas or Lanxess Corporation at 2151 King Street

Extension in Charleston, SC, then you must comply with the requirements in paragraphs (d)(3)(i) and (ii) of this section in lieu of the requirements specified in paragraphs (d)(1) and (2) of this section.

(i) For pumps and valves in ethylene oxide service, you must comply with the requirements in paragraphs (d)(3)(i)(A) through (E) of this section.

(A) You must install and operate leakless pumps as defined in §63.2550(i), and monitor the pumps annually.

(B) You must comply with either paragraph (d)(3)(i)(B)(*1*) or (*2*) for valves.

(*1*) Install and operate a leakless valve as defined in §63.2550(i) and monitor the valve annually or

(*2*) Operate any valve that is not considered a leakless valve as defined in §63.2550(i) and monitor the valve quarterly.

(C) Valves and pumps must be monitored using the methods specified in §63.180(b) and (c), §63.1023(b) and (c), or §65.104(b) and (c).

(D) For valves and pumps, the instrument reading that defines a leak is any value above the measured background concentration.

(E) When a leak is detected, it must be repaired as soon as practicable, but not later than 15 calendar days after the leak is detected. A first attempt at repair must be made no later than 5 calendar days after the leak is detected. Following repair, the valve or pump must be returned to operation as required in paragraphs (d)(3)(i)(A) through (D) of this section.

(ii) For connectors in ethylene oxide service, you must comply with the requirements in paragraphs (d)(3)(ii)(A) through (C) of this section.

(A) The instrument reading that defines a leak for connectors is 100 parts per million or greater.

(B) The monitoring period for connectors is once every month.

(C) When a leak is detected, it must be repaired as soon as practicable, but not later than 15 calendar days after the leak is detected. A first attempt at repair must be made no later than 5 calendar days after the leak is detected. Following repair, the connector must be returned to operation as required in paragraphs (d)(3)(ii)(A) and (B) of this section.

(4) For each light liquid pump, valve, or connector in ethylene oxide service that is added to an affected source, and for each light liquid pump, valve, or connector in ethylene oxide service that replaces a light liquid pump, valve, or connector in ethylene oxide service, you must initially monitor for leaks within 5 days after initial startup of the equipment.

(5) Pressure relief devices in ethylene oxide service must not vent directly to atmosphere.

(e) The referenced provisions specified in paragraphs (e)(1) through (15) of this section do not apply when demonstrating compliance with this section.

(1) §63.163(c)(3) of subpart H.

(2) §63.163(e) of subpart H.

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

(4) §63.1026(b)(3) of subpart UU.

(5) §63.1026(e) of subpart UU.

(6) The phrase “(except during periods of startup, shutdown, or malfunction)” from §63.1028(e)(1)(i)(A) of subpart UU.

(7) The phrase “(except during periods of startup, shutdown, or malfunction)” from §63.1031(b)(1) of subpart UU.

(8) The second sentence of §65.105(f)(4)(i) of subpart F.

(9) §65.107(b)(3) of subpart F.

(10) §65.107(e) of subpart F.

(11) The phrase "(except during periods of start-up, shutdown, or malfunction)" from §65.109(e)(1)(i)(A) of subpart F.

(12) The phrase "(except during periods of start-up, shutdown, or malfunction)" from §65.112(b)(1) of subpart F.

(13) The last sentence of §65.115(b)(1) of subpart F.

(14) The last sentence of §65.115(b)(2) of subpart F.

(15) For flares complying with §63.2450(e)(5), the following provisions do not apply:

(i) §63.172(d);

(ii) §63.180(e);

(iii) §63.181(g)(1)(iii);

(iv) The phrase "including periods when a flare pilot light system does not have a flame" from §63.181(g)(2)(i);

(v) §63.1034(b)(2)(iii); and

(vi) §65.115(b)(2).

(16) Requirements for maintenance vents in §63.2455(d).

16. Section 63.2495 is amended by revising paragraph (b)(1) to read as follows:

§63.2495 How do I comply with the pollution prevention standard?

* * * * *

(b) * * *

(1) You must comply with the emission limitations and work practice standards contained in tables 1 through 7 of this subpart for all HAP that are generated in the MCPU and that are not included in consumption, as defined in §63.2550. If any vent stream routed to the combustion control is a halogenated vent stream, as defined in §63.2550, then hydrogen halides that are generated as a result of combustion control must be controlled according to the requirements in §63.2450(e)(4) and the requirements of §63.994 and the requirements referenced therein.

* * * * *

17. Section 63.2500 is amended by revising paragraph (a) and adding paragraph (g) to read as follows:

§63.2500 How do I comply with emissions averaging?

(a) For an existing source, you may elect to comply with the percent reduction emission limitations in Tables 1, 2, 4, 5, and 7 to this subpart by complying with the emissions averaging provisions specified in §63.150, except as specified in paragraphs (b) through (g) of this section.

* * * * *

(g) Beginning no later than the compliance dates specified in §63.2445(g), §63.150(f)(2) does not apply when demonstrating compliance with this section.

18. Section 63.2505 is amended by revising paragraphs (b)(1) and (b)(6)(i) and (ii) to read as follows:

§63.2505 How do I comply with the alternative standard?

* * * * *

(b) * * *

(1) You must comply with the requirements in §63.2450(e)(4) and the requirements in §63.983 and the requirements referenced therein for closed-vent systems.

*   *   *   *   *

(6) *   *   *

(i) Demonstrate initial compliance with the 95 percent reduction by conducting a performance test and setting a site-specific operating limit(s) for the scrubber in accordance with the requirements in §63.2450(e)(4) and the requirements of §63.994 and the requirements referenced therein. You must submit the results of the initial compliance demonstration in the notification of compliance status report. If the performance test report is submitted electronically through the EPA's CEDRI in accordance with §63.2520(f), the process unit(s) tested, the pollutant(s) tested, and the date that such performance test was conducted may be submitted in the notification of compliance status report in lieu of the performance test results. The performance test results must be submitted to CEDRI by the date the notification of compliance status report is submitted.

(ii) Install, operate, and maintain CPMS for the scrubber as specified in §§63.994(c) and 63.2450(k), instead of as specified in §63.1258(b)(5)(i)(C). You must also comply with the requirements in §63.2450(e)(4), as applicable.

*   *   *   *   *

19. Section 63.2515 is amended by revising paragraph (a) and adding paragraph (d) to read as follows:

§63.2515 What notifications must I submit and when?

(a) Except as specified in paragraph (d) of this section, you must submit all of the notifications in §§63.6(h)(4) and (5), 63.7(b) and (c), 63.8(e), (f)(4) and (6), and 63.9(b) through (h) that apply to you by the dates specified.

*   *   *   *   *

(d) *Supplement to Notification of Compliance Status.* You must also submit supplements to the Notification of Compliance Status as specified in §63.2520(d)(3) through (5) of this section.

20. Section 63.2520 is amended by:

a. Revising paragraph (c) introductory text and paragraph (c)(2);

b. Adding paragraph (c)(8);

c. Revising paragraphs (d) introductory text and paragraph (d)(2)(ii);

d. Adding paragraphs (d)(3) through (5);

e. Revising paragraph (e) introductory text, paragraphs (e)(2) through (4), paragraph (e)(5)(ii) introductory text, and paragraph (e)(5)(ii)(A) and (B);

f. Adding paragraph (e)(5)(ii)(D);

g. Revising paragraph (e)(5)(iii) introductory text, paragraph (e)(5)(iii)(A) through(F), and (e)(5)(iii)(I);

h. Adding paragraphs (e)(5)(iii)(M) and(N);

i. Revising paragraphs (e)(7) and (8);

j. Adding paragraphs (e)(11) through (17), and (f) through (i).

The revisions and additions read as follows:

§63.2520 What reports must I submit and when?

*	*	*	*	*

(c) *Precompliance report.* You must submit a precompliance report to request approval for any of the items in paragraphs (c)(1) through (8) of this section. We will either approve or disapprove the report within 90 days after we receive it. If we disapprove the report, you must still be in compliance with the emission limitations and work practice standards in this subpart by the compliance date. To change any of the information submitted in the report, you must notify us 60 days before the planned change is to be implemented.

*   *   *   *   *

(2) Descriptions of daily or per batch demonstrations to verify that control devices subject to §63.2450(k)(6) are operating as designed.

*   *   *   *   *

(8) For halogen reduction device other than a scrubber, procedures for establishing monitoring parameters.

(d) *Notification of compliance status report.* You must submit a notification of compliance status report according to the schedule in paragraph (d)(1) of this section, and the notification of compliance status report must contain the information specified in paragraphs (d)(2) through (5) of this section.

*   *   *   *   *

(2) * * *

(ii) The results of emissions profiles, performance tests, engineering analyses, design evaluations, flare compliance assessments, inspections and repairs, and calculations used to demonstrate initial compliance according to §§63.2455 through 63.2485. For performance tests, results must include descriptions of sampling and analysis procedures and quality assurance procedures. If the performance test report is submitted electronically through the EPA's CEDRI in accordance with paragraph (f) of this section, the process unit(s) tested, the pollutant(s) tested, and the date that such performance test was conducted may be submitted in the notification of compliance status report in lieu of the performance test results. The performance test results must be submitted to CEDRI by the date the notification of compliance status report is submitted.

*   *   *   *   *

(3) For flares subject to the requirements of §63.2450(e)(5), you must also submit the information in this paragraph in a supplement to the Notification of Compliance Status within 150 days after the first applicable compliance date for flare monitoring. In lieu of the information required in §63.987(b) of subpart SS, the supplement to the Notification of Compliance Status must 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 is absent.

(4) For pressure relief devices subject to the pressure release management work practice standards in §63.2480(e)(3), you must also submit the information listed in paragraphs (d)(4)(i) and (ii) 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) 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.

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

(5) For process vents, storage tanks, and equipment leaks subject to the requirements of §63.2493, you must also submit the information in this paragraph in a supplement to the Notification of Compliance Status within 150 days after the first applicable compliance date. The supplement to the Notification of Compliance Status must identify all process vents, storage

tanks, and equipment that are in ethylene oxide service as defined in §63.2550, the method(s) used to control ethylene oxide emissions from each process vent and storage tank (i.e., use of a flare, scrubber, or other control device), the method(s) used to control ethylene oxide emissions from equipment (i.e., subpart UU or subpart H of this part 63, or 40 CFR part 65, subpart F), and the information specified in paragraphs (d)(5)(A) through (C) of this section.

(A) For process vents, include all uncontrolled, undiluted ethylene oxide concentration measurements, and the calculations you used to determine the total uncontrolled, undiluted ethylene oxide mass emission rate for the sum of all vent gas streams.

(B) For storage tanks, include the concentration of ethylene oxide of the fluid stored in each storage tank.

(C) For equipment, include the percent ethylene oxide content of the process fluid and the method used to determine it, and identify the location of each leakless pump and valve in operation.

(e) *Compliance report.* The compliance report must contain the information specified in paragraphs (e)(1) through (17) of this section. On and after **[date three years after date of publication of final rule in the Federal Register]**, you must submit all subsequent reports to the EPA via the CEDRI, which can be accessed through the EPA's CDX (*https://cdx.epa.gov/*). You must use 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. 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, submit a complete report, including information claimed to be CBI, to the EPA. The report must be generated using the appropriate form 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, CORE CBI Office, U.S. EPA Mailroom (C404-02), Attention: Miscellaneous Organic Chemical Manufacturing Sector Lead, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

* * * * *

(2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report. If your report is submitted via CEDRI, the certifier's electronic signature during the submission process replaces this requirement.

(3) Date of report and beginning and ending dates of the reporting period. You are no longer required to provide the date of report when the report is submitted via CEDRI.

(4) For each SSM during which excess emissions occur, the compliance report must include records that the procedures specified in your startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP, and include a brief description of each malfunction. On and after **[date 3 years after date of publication of final rule in the Federal Register]**, this paragraph no longer applies; however, for historical compliance purposes, a copy of the plan must be retained and available on-site for five years after **[date 3 years after date of publication of final rule in the Federal Register]**.

(5) * * *

(ii) For each deviation from an emission limit, operating limit, and work practice standard that occurs at an affected source where you are not using a continuous monitoring system (CMS) to comply with the emission limit or work practice standard in this subpart, you must include the information in paragraphs (e)(5)(ii)(A) through (D) of this section. This includes periods of SSM.

(A) The total operating time in hours of the affected source during the reporting period.

(B) Except as specified in paragraph (e)(5)(ii)(D) of this section, information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

* * * * *

(D) Beginning no later than the compliance dates specified in §63.2445(g), paragraph (e)(5)(ii)(B) of this section no longer applies. Instead, report information for each deviation to meet an applicable standard. For each instance, report the start date, start time and duration in hours of each deviation. For each deviation, the report must include a list of the affected sources or equipment, an estimate of the quantity in pounds of each regulated pollutant emitted over any emission limit, a description of the method used to estimate the emissions, the cause of the deviation (including unknown cause, if applicable), as applicable, and the corrective action taken.

(iii) For each deviation from an emission limit or operating limit occurring at an affected source where you are using a CMS to comply with an emission limit in this subpart, you must include the information in paragraphs (e)(5)(iii)(A) through (N) of this section. This includes periods of SSM.

(A) The start date, start time, and duration in hours that each CMS was inoperative, except for zero (low-level) and high-level checks.

(B) The start date, start time, and duration in hours that each CEMS was out-of-control and a description of the corrective actions taken.

(C) Except as specified in paragraph (e)(5)(iii)(M) of this section, the date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(D) The total duration in hours of all deviations for each CMS during the reporting period, the total operating time in hours of the affected source during the reporting period, and the total duration as a percent of the total operating time of the affected source during that reporting period.

(E) Except as specified in paragraph (e)(5)(iii)(N) of this section, a breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(F) The total duration in hours of CMS downtime for each CMS during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the affected source during that reporting period.

* * * * *

(I) The monitoring equipment manufacturer(s) and model number(s) and the pollutant or parameter monitored.

* * * * *

(M) Beginning no later than the compliance dates specified in §63.2445(g), paragraph (e)(5)(iii)(C) of this section no longer applies. Instead, report the number of deviation to meet an applicable standard. For each instance, report the start date, start time and duration in hours of each deviation. For each deviation, the report must include a list of the affected sources or equipment, an estimate of the quantity in pounds of each regulated pollutant emitted over any emission limit, a description of the method used to estimate the emissions, and the cause of the deviation (including unknown cause, if applicable), as applicable, and the corrective action taken.

(N) Beginning no later than the compliance dates specified in §63.2445(g), paragraph (e)(5)(iii)(E) of this section no longer applies. Instead, report a breakdown of the total duration in hours of the deviations during the reporting period into those that are due control equipment problems, process problems, other known causes, and other unknown causes.

* * * * *

(7) Include each new operating scenario which has been operated since the time period covered by the last compliance report and has not been submitted in the notification of compliance status report or a previous compliance report. For each new operating scenario, you must report the information specified in §63.2525(b) and provide verification that the operating conditions for any associated control or treatment device have not been exceeded and that any required calculations and engineering analyses have been performed. For the purposes of this paragraph, a revised operating scenario for an existing process is considered to be a new operating scenario.

(8) For process units added to a PUG, you must report the description and rationale specified in §63.2525(i)(4). You must report your primary product redeterminations specified in §63.2525(i)(5).

* * * * *

(11) For each flare subject to the requirements in §63.2450(e)(5), the compliance report must include the items specified in paragraphs (e)(11)(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 §63.2525(m)(1) of this section 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 is present. Include the start and stop time and date of each 15-minute block.

(ii) Visible emission records as specified in §63.2525(m)(2)(iv) for each period of 2 consecutive hours during which visible emissions exceeded a total of 5 minutes.

(iii) The periods specified in §63.2525(m)(6). Indicate the date and start and end times for each 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:

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

(B) The length of time in minutes for which emissions were visible from the flare during the event.

(C) For steam-assisted, air-assisted, and non-assisted flares, the start date, start time, and duration for periods of time that the flare tip velocity exceeds the maximum flare tip velocity determined using the methods in §63.670(d)(2) of subpart CC and the maximum 15-minute block average flare tip velocity in ft/sec recorded during the event.

(D) 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. Indicate the date and start and end times for each period.

(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. Indicate the date and start and end times for each period.

(12) For bypass lines subject to the requirements §63.2450(e)(6), the compliance report must include the start date, start time, duration in hours, estimate of the volume of gas in standard cubic feet, the concentration of organic HAP in the gas in parts per million by volume and the resulting mass emissions of organic HAP in pounds that bypass a control device. For periods when the flow indicator is not operating, report the start date, start time, and duration in hours.

(13) For each nonregenerative adsorber and regenerative adsorber that is regenerated offsite subject to the requirements in §63.2450(e)(7), you must report each instance when breakthrough, as defined in §63.2550(i), is detected between the first and second adsorber and the adsorber is not replaced according to §63.2450(e)(7)(iii)(A).

(14) For any maintenance vent release exceeding the applicable limits in §63.2455(d)(1), the compliance report must include the information specified in paragraphs (e)(14)(i) through (iv) of this section. For the purposes of this reporting requirement, if you comply with §63.2455(d)(1)(iv) then you 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 lower explosive limit in percent, vessel pressure in psig, or mass in pounds of VOC in the equipment, as applicable, at the start of atmospheric venting. If the 5 psig vessel pressure option in §63.2455(d)(1)(ii) was used and active purging was initiated while the lower explosive limit was 10 percent or greater, also include the lower explosive limit of the vapors at the time active purging was initiated.

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

(15) Compliance reports for pressure relief devices subject to the requirements §63.2480(e) must include the information specified in paragraphs (e)(15)(i) through (iii) of this section.

(i) For pressure relief devices in organic HAP gas or vapor service, pursuant to §63.2480(e)(2)(i), report the dates for all instrument readings of 500 ppmv or greater.

(ii) For pressure relief devices in organic HAP gas or vapor service subject to §63.2480(e)(2)(ii), report the dates of instrument monitoring conducted.

(iii) For pressure relief devices in organic HAP service subject to §63.2480(e)(2)(iii), report each pressure release to the atmosphere, including the start date, start time, and duration of the pressure release and estimate of the mass quantity in pounds 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.

(16) For each heat exchange system, beginning no later than the compliance dates specified in 63.2445(g), the reporting requirements of §63.104(f)(2) no longer apply; instead, the compliance report must include the information specified in paragraphs (e)(16)(i) through (v) of this section.

(i) The number of heat exchange systems at the plant site subject to the monitoring requirements in §63.2490(d).

(ii) The number of heat exchange systems at the plant site found to be leaking.

(iii) For each monitoring location where the total strippable hydrocarbon concentration was determined to be equal to or greater than the applicable leak definitions specified in §63.2490(d)(1)(v), identification of the monitoring location (e.g., unique monitoring location or heat exchange system ID number), the measured total strippable hydrocarbon concentration in ppmv as methane, the date the leak was first identified, and, if applicable, the date the source of the leak was identified;

(iv) 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 in ppmv as methane measured during re-monitoring to verify repair, and the re-monitoring date (i.e., the effective date of repair); and

(v) 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 in ppmv as methane and date of each monitoring event conducted on the delayed repair during the reporting period, and an estimate in pounds of the potential strippable hydrocarbon emissions over the reporting period associated with the delayed repair.

(17) For process vents and storage tanks in ethylene oxide service subject to the requirements of §63.2493, the compliance report must include:

(i) The periods specified in §63.2525(s)(4). Indicate the date and start and end times for each period.

(ii) If you obtain an instrument reading greater than 500 ppmv of a leak when monitoring a pressure vessel in accordance with §63.2493(c)(2), submit a copy of the records specified in §63.2525(s)(5)(ii).

(iii) Reports for equipment subject to the requirements of §63.2493 as specified in paragraph (e)(9) of this section.

(f) *Performance test reports.* Beginning no later than **[date 60 days after date of publication of final rule in the Federal Register]**, you must submit performance test reports in accordance with this paragraph. Within 60 days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedures specified in paragraphs (f)(1) through (3) of this section.

(1) *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.

(2) *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.

(3) *Confidential business information (CBI).* If you claim some of the information submitted under paragraphs (f)(1) and (2) of this section is CBI, you 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. Environmental Protection Agency, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, CORE CBI Office, U.S. EPA Mailroom (C404-02), Attention: Group Leader, Measurement Policy Group, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA’s CDX as described in paragraph (f)(1) and (2) of this section.

(g) *Performance evaluation reports.* Beginning no later than **[date 60 days after date of publication of final rule in the Federal Register]**, you must start submitting performance evaluation reports in accordance with this paragraph. Within 60 days after the date of completing each continuous monitoring system performance evaluation (as defined in §63.2), you must submit the results of the performance evaluation following the procedures specified in paragraphs (g)(1) through (3) of this section.

(1) *Performance evaluations of CMS measuring relative accuracy test audit (RATA) pollutants that are supported by the EPA's ERT as listed on the EPA's ERT website at the time of the evaluation.* Submit the results of the performance evaluation to the EPA via CEDRI, which can be accessed through the EPA's CDX. 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 XML schema listed on the EPA's ERT website.

(2) *Performance evaluations of CMS measuring RATA pollutants that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the evaluation.* The results of the performance evaluation 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.

(3) *Confidential business information (CBI).* If you claim some of the information submitted under paragraphs (g)(1) and (2) of this section is CBI, you 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. Environmental Protection Agency, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, CORE CBI Office, U.S. EPA Mailroom (C404-02), Attention: Group Leader, Measurement Policy Group, 4930 Old Page Rd., Durham,

NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA’s CDX as described in paragraphs (g)(1) and (2) of this section.

(h) *Claims of EPA system outage.* 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, you must meet the requirements outlined in paragraphs (h)(1) through (7) of this section.

(1) You 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.

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

(3) The outage may be planned or unplanned.

(4) You 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.

(5) You must provide to the Administrator a written description identifying:

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

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

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

(iv) 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.

(6) 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.

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

(i) *Claims of force majeure.* 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, you must meet the requirements outlined in paragraphs (i)(1) through (5) of this section.

(1) 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).

(2) You 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.

(3) You must provide to the Administrator:

(i) A written description of the force majeure event;

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

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

(iv) 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.

(4) 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.

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

21. Section 63.2525 is amended by revising the introductory text and paragraphs (a), (e)(1)(ii), (f), (h), and (j), and adding paragraphs (l) through (u) to read as follows:

§63.2525 What records must I keep?

You must keep the records specified in paragraphs (a) through (t) of this section.

(a) Except as specified in §63.2450(e)(4), §63.2480(f), §63.2485(p) and (q), and paragraph (t) of this section, each applicable record required by subpart A of this part 63 and in referenced subparts F, G, SS, UU, WW, and GGG of this part 63 and in referenced subpart F of 40 CFR part 65.

* * * * *

(e) * * *

(1) * * *

(ii) You control the Group 2 batch process vents using a flare that meets the requirements of §§63.987 or 63.2450(e)(5), as applicable.

* * * * *

(f) A record of each time a safety device is opened to avoid unsafe conditions in accordance with §63.2450(p).

*   *   *   *   *

(h) Except as specified in paragraph (l) of this section, for each CEMS, you must keep records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

*   *   *   *   *

(j) In the SSMP required by §63.6(e)(3), you are not required to include Group 2 emission points, unless those emission points are used in an emissions average. For equipment leaks, the SSMP requirement is limited to control devices and is optional for other equipment. On and after **[date 3 years after date of publication of final rule in the Federal Register]**, this paragraph no longer applies.

*   *   *   *   *

(l) Beginning no later than the compliance dates specified in §63.2445(g), paragraph (h) of this section no longer applies. Instead, for each deviation from an emission limit, operating limit, or work practice standard, you must keep a record of the information specified in paragraph (l)(1) through (3) of this section. The records shall be maintained as specified in §63.10(b)(1).

(1) In the event that an affected unit does not meet an applicable standard, record the number of deviations. For each deviation record the date, time and duration of each deviation.

(2) For each deviation from an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(3) Record actions taken to minimize emissions in accordance with §63.2450(u) and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(m) For each flare subject to the requirements in §63.2450(e)(5), you must keep records specified in paragraphs (m)(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 as required in §63.670(b) of subpart CC and §63.2450(e)(5)(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 is present when regulated material is routed to a flare for a minimum of 5 years. For a 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.

(2) Retain records of daily visible emissions observations or video surveillance images required in §63.670(h) of subpart CC as specified in paragraphs (m)(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 at 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, 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 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 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 §63.2450(e)(5)(vii) when regulated material is being routed to the flare.

(7) All periods during which you do 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, 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) and (xi).

(n) For each flow event from a bypass line subject to the requirements in §63.2450(e)(6), you 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 Tables 1 through 7 to this subpart, you 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.

(o) For each nonregenerative adsorber and regenerative adsorber that is regenerated offsite subject to the requirements in §63.2450(e)(7), you must keep the applicable records specified in (o)(1) through (4) of this section.

(1) Outlet HAP or TOC concentration for each adsorber bed measured during each performance test conducted.

(2) Daily outlet HAP or TOC concentration.

(3) Date and time you last replaced the adsorbent.

(4) If you conduct monitoring less frequently than daily as specified in 63.2450(e)(7)(iii)(B), you must record the average life of the bed.

(p) For each maintenance vent opening subject to the requirements in §63.2455(d), you must keep the applicable records specified in (p)(1) through (5) of this section.

(1) You 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 §63.2455(d). 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 five years.

(2) If complying with the requirements of §63.2455(d))(1)(i) and the lower explosive limit at the time of the vessel opening exceeds 10 percent, identification of the maintenance vent, the process units or equipment associated with the maintenance vent, the date of maintenance vent opening, and the lower explosive limit at the time of the vessel opening.

(3) If complying with the requirements of §63.2455(d)(1)(ii) and either the vessel pressure at the time of the vessel opening exceeds 5 psig or the lower explosive limit at the time of the active purging was initiated exceeds 10 percent, identification of 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 lower explosive limit of the vapors in the equipment when active purging was initiated.

(4) If complying with the requirements of §63.2455(d)(1)(iii), records used to estimate the total quantity of VOC in the 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 for which the deinventory procedures specified in paragraph (p)(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, identification of 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 §63.2455(d)(1)(iv), 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 lower explosive limit 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.

(q) For each pressure relief device subject to the pressure release management work practice standards in §63.2480(e), you must keep the records specified in paragraphs (q)(1) through (3) of this section.

(1) Records of the prevention measures implemented as required in §63.2480(e)(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, you must keep the records specified in paragraphs (q)(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 §63.2480(e)(3)(iii), including an identification of the affected facility, 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 §63.2480(e)(7)(i).

(iv) For any corrective action analysis for which implementation of corrective actions are required in §63.2480(e)(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.

(r) For each heat exchange system, beginning no later than the compliance dates specified in 63.2445(g), the recordkeeping requirements of §63.104(f)(1) no longer apply; instead, you must keep records in paragraphs (r)(1) through (4) of this section.

(1) Monitoring data required by §63.2490(d) that indicate a leak, the date the leak was detected, or, if applicable, the basis for determining there is no leak.

(2) The dates of efforts to repair leaks.

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

(4) Documentation of delay of repair as specified in paragraphs (r)(4)(i) through (iv) of this section.

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

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

(iii) The date and concentration of the leak as first identified and the results of all subsequent monitoring events during the delay of repair.

(iv) An estimate of the potential strippable hydrocarbon emissions from the leaking heat exchange system or heat exchanger for each required delay of repair monitoring interval following the procedures in paragraphs (r)(4)(iv)(A) through (D) of this section.

(A) Determine the leak concentration as specified in §63.2490(d) and convert 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" Revision Number One, dated January 2003, Sampling Procedures Manual, appendix P: Cooling Tower Monitoring, prepared by Texas Commission on Environmental Quality, January 31, 2003 (incorporated by reference—see §63.14) and the molecular weight of 16 grams per mole (g/mol) for methane.

(B) Determine 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. Volumetric flow measurements may be used and converted to mass flow rates using the density of water at the specific monitoring location temperature or using the default density of water at 25 degrees Celsius, which is 997 kilograms per cubic meter or 8.32 pounds per gallon.

(C) For delay of repair monitoring intervals prior to repair of the leak, calculate the potential strippable hydrocarbon emissions for the leaking heat exchange system or heat exchanger for the monitoring interval by multiplying the leak concentration in the cooling water, ppmw, determined in (r)(4)(iv)(A) of this section, by the mass flow rate of the cooling water determined in (r)(4)(iv)(B) of this section and 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 had to be completed if the repair had not been delayed, whichever is later, and ending at midnight of the day the of the current monitoring event.

(D) For delay of repair monitoring intervals ending with a repaired leak, calculate the potential strippable 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 leak concentration and cooling water flow rates 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.

(s) For process vents and storage tanks in ethylene oxide service subject to the requirements of §63.2493, you must keep the records specified in paragraphs (s)(1) through (5) of this section in addition to those records specified in paragraph (a) of this section. Records for equipment in ethylene oxide service subject to the requirements of §63.2493 are specified in paragraph (a) of this section.

(1) For process vents, include all uncontrolled, undiluted ethylene oxide concentration measurements, and the calculations you used to determine the total uncontrolled, undiluted ethylene oxide mass emission rate for the sum of all vent gas streams.

(2) For storage tanks, records of the concentration of ethylene oxide of the fluid stored in each storage tank.

(3) For equipment, records of the percent ethylene oxide content of the process fluid and the method used to determine it, and records identifying the location of each leakless pump and valve in operation.

(4) If you vent emissions through a closed-vent system to a non-flare control device, then you must keep records of all periods during which operating values are outside of the applicable operating limits specified in §63.2493(b)(4) through (6) when regulated material is being routed to the non-flare control device. The record must specify the operating parameter, the applicable limit, and the highest (for maximum operating limits) or lowest (for minimum operating limits) value recorded during the period.

(5) For pressure vessels subject to §63.2493(c), records as specified in paragraphs (s)(5)(i) through (iv) of this section.

(i) The date of each performance test conducted according to §63.2493(c)(2).

(ii) The instrument reading of each performance test conducted according to §63.2493(c)(2), including the following:

(A) Date each defect was detected.

(B) Date of the next performance test that shows the instrument reading is less than 500 ppmv.

(C) Start and end dates of each period after the date in paragraph (s)(5)(ii)(A) of this section when the pressure vessel was completely empty.

(D) Estimated emissions from each defect.

(t) Any records required to be maintained by this part that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

(u) Beginning no later than the compliance dates specified in §63.2445(g), the referenced provisions specified in paragraphs (u)(1) through (8) of this section do not apply when demonstrating compliance with paragraph (a) of this section.

(1) §63.103(c)(2)(i) of subpart F.

(2) §63.103(c)(2)(ii) of subpart F.

(3) The phrase "start-up, shutdown and malfunction and" from §63.103(c)(3) of subpart F.

(4) The phrase "other than startups, shutdowns, or malfunctions (e.g., a temperature reading of −200 °C on a boiler)," from §63.152(g)(1)(i) of subpart G.

(5) The phrase "other than a startup, shutdown, or malfunction" from §63.152(g)(1)(ii)(C) of subpart G.

(6) The phrase “other than startups, shutdowns, or malfunctions” from §63.152(g)(1)(iii) of subpart G.

(7) The phrase “other than a startup, shutdown, or malfunction” from §63.152(g)(2)(iii) of subpart G.

(8) §63.152(g)(2)(iv)(A) of subpart G.

22. Section 63.2535 is amended by revising the introductory text and paragraph (d) and adding paragraph (m) to read as follows:

§63.2535 What compliance options do I have if part of my plant is subject to both this subpart and another subpart?

For any equipment, emission stream, or wastewater stream not subject to §§63.2445 (g), 63.2450(e)(5) or 63.2493 but subject to other provisions of both this subpart and another rule, you may elect to comply only with the provisions as specified in paragraphs (a) through (l) of this section. You also must identify the subject equipment, emission stream, or wastewater stream, and the provisions with which you will comply, in your notification of compliance status report required by §63.2520(d).

*   *   *   *   *

(d) Compliance with subpart I, GGG, or MMM of this part 63. After the compliance dates specified in §63.2445, if you have an affected source with equipment subject to subpart I, GGG, or MMM of this part 63, you may elect to comply with the provisions of subpart H, GGG, or MMM of this part 63, respectively, for all such equipment, except the affirmative defense requirements in subparts GGG and MMM no longer apply.

*   *   *   *   *

(m) Overlap of subpart FFFF with other regulations for flares. Beginning no later than the compliance dates specified in §63.2445(g), flares that control ethylene oxide emissions or are used to control emissions from processes that produce olefins and polyolefins, subject to the provisions of 40 CFR 60.18 or 63.11, and used as a control device for an emission point subject to the emission limits and work practice standards in tables 1 through 7 to this subpart are required to comply only with the provisions specified in §63.2450(e)(5). At any time before the compliance dates specified in §63.2445(g), flares that are subject to the provisions of 40 CFR 60.18 or 63.11 and elect to comply with the requirements in §63.2450(e)(5) are required to comply only with the provisions specified in this subpart.

23. Section 63.2545 is amended by revising paragraph (b) introductory text and adding paragraph (b)(5) to read as follows:

§63.2545 Who implements and enforces this subpart?

* * * * *

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraphs (b)(1) through (5) of this section are retained by the Administrator of U.S. EPA and are not delegated to the State, local, or tribal agency.

* * * * *

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

24. In § 63.2550 amend paragraph (i) by:

a. Revising paragraph (4) in the definition of “Batch process vent” ;

b. Adding, in alphabetical order, new definitions for “Bench-scale process” and “Breakthrough”;

c. Adding paragraphs (8) and (9) in the definition of “Continuous process vent”;

d. Revising paragraph (3) in the definition of “Deviation”;

e. Adding, in alphabetical order, definitions for “Force majeure”, “Heat exchange system”, “In ethylene oxide service”, “Leakless pump”, “Leakless valve”, “Loading rack”;

f. Revising paragraph (6) in the definition of “Miscellaneous organic chemical manufacturing process”; and

g. Adding definitions, in alphabetical order, for “Pressure release”, “Pressure relief device”, “Pressure vessel”, and “Relief valve”.

The revisions and additions read as follows:

§63.2550 What definitions apply to this subpart?

* * * * *

(i) * * *

Batch process vent * * *

(4) Gaseous streams routed to a fuel gas system(s) unless on and after **[date 3 years after date of publication of final rule in the Federal Register]**, the fuel gas system(s) supplies a flare of which 50 percent or more of the fuel gas burned in the flare is derived from an MCPU that has processes and/or equipment in ethylene oxide service, or produces olefins or polyolefins;

* * * * *

Bench-scale process means a process (other than a research and development facility) that is operated on a small scale, such as one capable of being located on a laboratory bench top. This bench-scale equipment will typically include reagent feed vessels, a small reactor and associated product separator, recovery and holding equipment. These processes are only capable of producing small quantities of product.

*	*	*	*	*

Breakthrough means the time when the level of HAP or TOC detected is at the highest concentration allowed to be discharged from an adsorber system.

*	*	*	*	*

Continuous process vent *	*	*

(8) On and after **[date 3 years after date of publication of final rule in the Federal Register]**, §63.107(h)(3) applies unless the fuel gas system supplies a flare of which 50 percent or more of the fuel gas burned in the flare is derived from an MCPU that has processes and/or equipment in ethylene oxide service, or produces olefins or polyolefins.

(9) On and after **[date 3 years after date of publication of final rule in the Federal Register]**, §63.107(i) no longer applies. Instead, a process vent is the point of discharge to the atmosphere (or the point of entry into a control device, if any) of a gas stream if the gas stream meets the criteria specified in this paragraph. The gas stream would meet the characteristics specified in §63.107(b) through (g) of this section, but, for purposes of avoiding applicability, has been deliberately interrupted, temporarily liquefied, routed through any item of equipment for no process purpose, or disposed of in a flare that does not meet the criteria in §63.11(b) or §63.2450(e)(5) as applicable, or an incinerator that does not reduce emissions of organic HAP by 98 percent or to a concentration of 20 parts per million by volume, whichever is less stringent.

*	*	*	*	*

Deviation *	*	*

(3) Before **[date 3 years after date of publication of final rule in the Federal Register]**, fails to meet any emission limit, operating limit, or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart. On and after **[date 3 years after date of publication of final rule in the Federal Register]**, this paragraph no longer applies.

* * * * *

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 MCPU (*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 miscellaneous organic chemical manufacturing process unit that impacts the miscellaneous organic chemical manufacturing process unit's ability to operate.

* * * * *

Heat exchange system means a device or collection of devices used to transfer heat from process fluids to water without intentional direct contact of the process fluid with the water (*i.e.*, non-contact heat exchanger) and to transport and/or cool the water in a closed-loop recirculation system (cooling tower system) or a once-through system (*e.g.*, river or pond water). For closed-loop recirculation systems, the heat exchange system consists of a cooling tower, all miscellaneous organic chemical manufacturing process unit heat exchangers that are in organic HAP service, as defined in this subpart, serviced by that cooling tower, and all water lines to and from these miscellaneous organic chemical manufacturing process unit heat exchangers. For once-through systems, the heat exchange system consists of all heat exchangers that are in organic HAP service, as defined in this subpart, servicing an individual miscellaneous organic chemical manufacturing process unit and all water lines to and from these heat exchangers. Sample coolers or pump seal coolers are not considered heat exchangers for the purpose of this definition and are not part of the heat exchange system. Intentional direct contact with process fluids results in the formation of a wastewater.

*   *   *   *   *

In ethylene oxide service means the following:

(1) For equipment leaks, any equipment that contains or contacts a fluid (liquid or gas) that is at least 0.1 percent by weight of ethylene oxide. If information exists that suggests ethylene oxide could be present in equipment, the equipment is considered to be “in ethylene oxide service” unless sampling and analysis is performed as specified in §63.2492 to demonstrate that the equipment does not meet the definition of being “in ethylene oxide service". Examples of information that could suggest ethylene oxide could be present in equipment, include calculations based on safety data sheets, material balances, process stoichiometry, or previous test results provided the results are still relevant to the current operating conditions.

(2) For process vents, each batch and continuous process vent in a process that, when uncontrolled, contains a concentration of greater than or equal to 1 ppmv undiluted ethylene oxide anywhere in the process, and when combined, the sum of all these process vents would emit uncontrolled, undiluted ethylene oxide emissions greater than or equal to 5 lb/yr (2.27 kg/yr). If information exists that suggests ethylene oxide could be present in a batch or continuous process vent, then the batch or continuous process vent is considered to be “in ethylene oxide service” unless an analysis is performed as specified in §63.2492 to demonstrate

that the batch or continuous process vent does not meet the definition of being “in ethylene oxide service". Examples of information that could suggest ethylene oxide could be present in a batch or continuous process vent, include calculations based on safety data sheets, material balances, process stoichiometry, or previous test results provided the results are still relevant to the current operating conditions.

(3) For storage tanks, storage tanks of any capacity and vapor pressure storing a liquid with a concentration of ethylene oxide greater than or equal to 1 ppmw. If knowledge exists that suggests ethylene oxide could be present in a storage tank, then the storage tank is considered to be “in ethylene oxide service” unless sampling and analysis is performed as specified in §63.2492 to demonstrate that the storage tank does not meet the definition of being “in ethylene oxide service". The exemptions for “vessels storing organic liquids that contain HAP only as impurities” and “pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere” listed in the definition of “storage tank” in this section do not apply for storage tanks that may be in ethylene oxide service. Examples of information that could suggest ethylene oxide could be present in a storage tank, include calculations based on safety data sheets, material balances, process stoichiometry, or previous test results provided the results are still relevant to the current operating conditions.

* * * * *

Leakless pump means a pump that has no externally actuated shaft penetrating the pump housing, and as such, is designed to operate with no instrument readings above the background concentration level, as demonstrated using Method 21 of 40 CFR part 60, appendix A-7. Examples of leakless pumps include diaphragm pumps, magnetically-driven pumps, and canned motor pumps. A pump equipped with a dual mechanical seal system that includes a barrier fluid system with a higher pressure than the process is also considered a leakless pump.

Leakless valve means a valve that has no external actuating mechanism in contact with the process fluid, and as such, is designed to operate with no instrument readings above the background concentration level, as demonstrated using Method 21 of 40 CFR part 60, appendix A-7. Examples of leakless valves include bellows valves which are gate or globe valves that use a cylindrical metal bellows to hermetically seal the valve against stem leakage.

Loading rack means a single system used to fill tank trucks and railcars at a single geographic site. Loading equipment and operations that are physically separate (*i.e.*, do not share common piping, valves, and other equipment) are considered to be separate loading racks.

* * * * *

Miscellaneous organic chemical manufacturing process * * *

(6) The end of a process that produces a solid material is either up to and including the dryer or extruder, or for a polymer production process without a dryer or extruder, it is up to and including the die plate or solid-state reactor, except in two cases. If the dryer, extruder, die plate, or solid-state reactor is followed by an operation that is designed and operated to remove HAP solvent or residual HAP monomer from the solid, then the solvent removal operation is the last step in the process. If the dried solid is diluted or mixed with a HAP-based solvent, then the solvent removal operation is the last step in the process.

* * * * *

Pressure release means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device. This release can be one release or a series of releases over a short time period.

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.

Pressure vessel means a storage vessel that is used to store liquids or gases and is designed not to vent to the atmosphere as a result of compression of the vapor headspace in the pressure vessel during filling of the pressure vessel to its design capacity.

*   *   *   *   *

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

*   *   *   *   *

25. Table 1 to subpart FFFF of part 63 is revised to read as follows:

Table 1 to Subpart FFFF of Part 63—Emission Limits and Work Practice Standards for Continuous Process Vents

As required in §63.2455, you must meet each emission limit and work practice standard in the following table that applies to your continuous process vents:

For each . . .	**For which . . .**	**Then you must . . .**
1. Group 1 continuous process vent	a. Not applicable	i. Reduce emissions of total organic HAP by ≥98 percent by weight or to an outlet process concentration ≤20 ppmv as organic HAP or TOC by venting emissions through a closed-vent system to any combination of control devices (except a flare); or
		ii. Reduce emissions of total organic HAP by venting emissions through a closed vent system

		to a flare; or
		iii. Use a recovery device to maintain the TRE above 1.9 for an existing source or above 5.0 for a new source.
2. Halogenated Group 1 continuous process vent stream	a. You use a combustion control device to control organic HAP emissions	i. Use a halogen reduction device after the combustion device to reduce emissions of hydrogen halide and halogen HAP by ≥99 percent by weight, or to ≤0.45 kg/hr, or to ≤20 ppmv; or ii. Use a halogen reduction device before the combustion device to reduce the halogen atom mass emission rate to ≤0.45 kg/hr or to a concentration ≤20 ppmv.
3. Group 2 continuous process vent at an existing source	You use a recovery device to maintain the TRE level >1.9 but ≤5.0	Comply with the requirements in §63.2450(e)(4) and the requirements in §63.993 and the requirements referenced therein.
4. Group 2 continuous process vent at a new source	You use a recovery device to maintain the TRE level >5.0 but ≤8.0	Comply with the requirements in §63.2450(e)(4) and the requirements in §63.993 and the requirements referenced therein.
5. Continuous process vent	Beginning no later than the compliance dates specified in §63.2445(i), the continuous process vent contains ethylene oxide such that it is considered to be in ethylene oxide service as defined in §63.2550	Comply with the applicable emission limits specified in items 1 through 4 of this Table, and also: i. Reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a flare; or ii. Reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a control device that reduces ethylene oxide by ≥99.9 percent by weight, or to a concentration <1 ppmv for each process vent or to <5 pounds per year for all combined process vents.

26. Table 2 to subpart FFFF of part 63 is amended by adding a new entry 3 to read as follows:

Table 2 to Subpart FFFF of Part 63—Emission Limits and Work Practice Standards for Batch Process Vents

As required in §63.2460, you must meet each emission limit and work practice standard in the following table that applies to your batch process vents:

For each . . .	Then you must . . .	And you must . . .
1. Process with Group 1 batch process vents	a. Reduce collective uncontrolled organic HAP emissions from the sum of all batch process vents within the process by ≥98 percent by weight by venting emissions from a sufficient number of the vents through one or more closed-vent systems to any combination of control devices (except a flare); or	Not applicable.
	b. Reduce collective uncontrolled organic HAP emissions from the sum of all batch process vents within the process by ≥95 percent by weight by venting emissions from a sufficient number of the vents through one or more closed-vent systems to any combination of recovery devices or a biofilter, except you may elect to comply with the requirements of subpart WW of this part for any process tank; or	Not applicable.
	c. Reduce uncontrolled organic HAP emissions from one or more batch process vents within the process by venting through a closed-vent system to a flare or by venting through one or more closed-vent systems to any combination of control devices (excluding a flare) that reduce organic HAP to an outlet concentration ≤20 ppmv as TOC or total organic HAP.	For all other batch process vents within the process, reduce collective organic HAP emissions as specified in item 1.a and/or item 1.b of this table.
2. Halogenated Group 1 batch process vent for which you use a combustion device to control organic HAP emissions	a. Use a halogen reduction device after the combustion control device; or	i. Reduce overall emissions of hydrogen halide and halogen HAP by ≥99 percent; or ii. Reduce overall emissions of hydrogen halide and halogen HAP to ≤0.45 kg/hr; or iii. Reduce overall emissions of hydrogen halide and halogen HAP to a concentration ≤20 ppmv.
	b. Use a halogen reduction device before the combustion control device	Reduce the halogen atom mass emission rate to ≤0.45 kg/hr or to a concentration ≤20 ppmv.
3. Batch process vent that contains	Beginning no later than the compliance dates specified in §63.2445(i), comply with the	Not applicable.

ethylene oxide such that it is considered to be in ethylene oxide service as defined in §63.2550	applicable emission limits specified in items 1 and 2 of this Table, and also: i. Reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a flare; or ii. Reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a control device that reduces ethylene oxide by ≥99.9 percent by weight, or to a concentration <1 ppmv for each process vent or to <5 pounds per year for all combined process vents.	

27. Table 4 to subpart FFFF of part 63 is revised to read as follows:

Table 4 to Subpart FFFF of Part 63—Emission Limits for Storage Tanks

As required in §63.2470, you must meet each emission limit in the following table that applies to your storage tanks:

For each . . .	**For which . . .**	**Then you must . . .**
1. Group 1 storage tank	a. The maximum true vapor pressure of total HAP at the storage temperature is ≥76.6 kilopascals	i. Reduce total HAP emissions by ≥95 percent by weight or to ≤20 ppmv of TOC or organic HAP and ≤20 ppmv of hydrogen halide and halogen HAP by venting emissions through a closed vent system to any combination of control devices (excluding a flare); or
		ii. Reduce total organic HAP emissions by venting emissions through a closed vent system to a flare; or
		iii. Comply with the requirements in §63.2450(e)(4), as applicable; and reduce total HAP emissions by venting emissions to a fuel gas system or process in accordance with §63.982(d) and the requirements referenced therein.(a)
	b. The maximum true vapor pressure of total HAP at the storage temperature is <76.6 kilopascals	i. Comply with the requirements of subpart WW of this part, except as specified in §63.2470; or
		ii. Reduce total HAP emissions by ≥95 percent by weight or to ≤20 ppmv of TOC or organic HAP and ≤20 ppmv of hydrogen halide and

		halogen HAP by venting emissions through a closed vent system to any combination of control devices (excluding a flare); or
		iii. Reduce total organic HAP emissions by venting emissions through a closed vent system to a flare; or
		iv. Comply with the requirements in §63.2450(e)(4), as applicable; and reduce total HAP emissions by venting emissions to a fuel gas system or process in accordance with §63.982(d) and the requirements referenced therein.(a)
2. Halogenated vent stream from a Group 1 storage tank	You use a combustion control device to control organic HAP emissions	Meet one of the emission limit options specified in Item 2.a.i or ii. in Table 1 to this subpart.
3. Storage tank of any capacity and vapor pressure	Beginning no later than the compliance dates specified in §63.2445(i), the stored liquid contains ethylene oxide such that the storage tank is considered to be in ethylene oxide service as defined in §63.2550	Comply with the applicable emission limits specified in items 1 and 2 of this Table, and also: i. Reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a flare; or ii. Reduce emissions of ethylene oxide by venting emissions through a closed-vent system to a control device that reduces ethylene oxide by ≥99.9 percent by weight, or to a concentration <1 ppmv for each storage tank vent.

(a) Beginning no later than the compliance dates specified in §63.2445(g), any flare using fuel gas from a fuel gas system, of which 50 percent or more of the fuel gas is derived from an MCPU that has processes and/or equipment in ethylene oxide service or that produces olefins or polyolefins, must be in compliance with §63.2450(e)(5).

28. Table 5 to subpart FFFF of part 63 is revised to read as follows:

Table 5 to Subpart FFFF of Part 63—Emission Limits and Work Practice Standards for Transfer Racks

As required in §63.2475, you must meet each emission limit and work practice standard in the following table that applies to your transfer racks:

For each . . .	You must . . .
1. Group 1 transfer rack	a. Reduce emissions of total organic HAP by ≥98 percent by weight or to an outlet concentration ≤20 ppmv as organic HAP or TOC by venting emissions through a closed-vent system to any combination of control devices (except a flare); or
	b. Reduce emissions of total organic HAP by venting emissions through a closed-vent system to a flare; or
	c. Comply with the requirements in §63.2450(e)(4), as applicable; and reduce emissions of total organic HAP by venting emissions to a fuel gas system or process in accordance with §63.982(d) and the requirements referenced therein;(a) or
	d. Use a vapor balancing system designed and operated to collect organic HAP vapors displaced from tank trucks and railcars during loading and route the collected HAP vapors to the storage tank from which the liquid being loaded originated or to another storage tank connected by a common header.
2. Halogenated Group 1 transfer rack vent stream for which you use a combustion device to control organic HAP emissions	a. Use a halogen reduction device after the combustion device to reduce emissions of hydrogen halide and halogen HAP by ≥99 percent by weight, to ≤0.45 kg/hr, or to ≤20 ppmv; or b. Use a halogen reduction device before the combustion device to reduce the halogen atom mass emission rate to ≤0.45 kg/hr or to a concentration ≤20 ppmv.

(a) Beginning no later than the compliance dates specified in §63.2445(g), any flare using fuel gas from a fuel gas system, of which 50 percent or more of the fuel gas is derived from an MCPU that has processes and/or equipment in ethylene oxide service or that produces olefins or polyolefins, must be in compliance with §63.2450(e)(5).

29. Table 6 to subpart FFFF of part 63 is revised to read as follows:

Table 6 to Subpart FFFF of Part 63—Requirements for Equipment Leaks

As required in §63.2480, you must meet each requirement in the following table that applies to your equipment leaks:

For all . . .	And that is part of . . .	You must . . .
1. Equipment that is in organic HAP service	a. Any MCPU	i. Comply with the requirements of subpart UU of this part 63 and the requirements referenced therein, except as specified in §63.2480(b), and (d) through (f); or
		ii. Comply with the requirements of subpart H of this part 63 and the requirements referenced therein, except as specified in §63.2480(b), and (d) through (f); or

		iii. Comply with the requirements of 40 CFR part 65, subpart F and the requirements referenced therein, except as specified in §63.2480(c), and (d) through (f).
2. Equipment that is in organic HAP service at a new source	a. Any MCPU	i. Comply with the requirements of subpart UU of this part 63 and the requirements referenced therein, except as specified in §63.2480(b)(6), (b)(7), (e), and (f); or ii. Comply with the requirements of 40 CFR part 65, subpart F, except as specified in §63.2480(c)(10), (c)(11), (e), and (f).
3. Equipment that is in ethylene oxide service as defined in §63.2550	a. Any MCPU	i. Beginning no later than the compliance dates specified in §63.2445(i), comply with the requirements of subpart UU of this part 63 and the requirements referenced therein, except as specified in §63.2493(d) and (e); or
		ii. Beginning no later than the compliance dates specified in §63.2445(i), comply with the requirements of subpart H of this part 63 and the requirements referenced therein, except as specified in §63.2493(d) and (e);
		iii. Beginning no later than the compliance dates specified in §63.2445(i), comply with the requirements of 40 CFR part 65, subpart F and the requirements referenced therein, except as specified in §63.2493(d) and (e).

30. Table 10 to subpart FFFF of part 63 is revised to read as follows:

Table 10 to Subpart FFFF of Part 63—Work Practice Standards for Heat Exchange Systems

As required in §63.2490, you must meet each requirement in the following table that applies to your heat exchange systems:

For each . . .	**You must . . .**
Heat exchange system, as defined in §63.101	a. Comply with the requirements of §63.104 and the requirements referenced therein, except as specified in §63.2490(b) and (c); or
	b. Comply with the requirements in §63.2490(d).

31. Table 12 to subpart FFFF of part 63 is revised to read as follows:

Table 12 to Subpart FFFF of Part 63—Applicability of General Provisions to Subpart FFFF

As specified in §63.2540, the parts of the General Provisions that apply to you are shown in the following table:

Citation	**Subject**	**Explanation**
§63.1	Applicability	Yes.
§63.2	Definitions	Yes.
§63.3	Units and Abbreviations	Yes.
§63.4	Prohibited Activities	Yes.
§63.5	Construction/Reconstruction	Yes.
§63.6(a)	Applicability	Yes.
§63.6(b)(1)-(4)	Compliance Dates for New and Reconstructed sources	Yes.
§63.6(b)(5)	Notification	Yes.
§63.6(b) (6)	[Reserved]	
§63.6(b)(7)	Compliance Dates for New and Reconstructed Area Sources That Become Major	Yes.
§63.6(c)(1)-(2)	Compliance Dates for Existing Sources	Yes.
§63.6(c)(3)-(4)	[Reserved]	
§63.6(c)(5)	Compliance Dates for Existing Area Sources That Become Major	Yes.
§63.6(d)	[Reserved]	
§63.6(e)(1)(i)	Operation & Maintenance	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**. See §63.2450(u) for general duty requirement.
§63.6(e)(1)(ii)	Operation & Maintenance	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.6(e)(1)(iii)	Operation & Maintenance	Yes.
§63.6(e)(2)	[Reserved]	
§63.6(e)(3)(i), (ii), and (v) through (viii)	Startup, Shutdown, Malfunction Plan (SSMP)	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**, except information regarding Group 2 emission points and equipment leaks is not required in the SSMP, as specified in §63.2525(j).

		No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.6(e)(3)(iii) and (iv)	Recordkeeping and Reporting During SSM	No, see §63.2525 for recordkeeping requirements and §63.2520(e)(4) for reporting requirements.
§63.6(e)(3)(ix)	SSMP incorporation into title V permit	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.6(f)(1)	Compliance Except During SSM	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.6(f)(2)-(3)	Methods for Determining Compliance	Yes.
§63.6(g)(1)-(3)	Alternative Standard	Yes.
§63.6(h)(1)	Compliance with Opacity/VE Standards	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.6(h)(2)-(9)	Opacity/Visible Emission (VE) Standards	Only for flares for which Method 22 observations are required as part of a flare compliance assessment.
§63.6(i)(1)-(14)	Compliance Extension	Yes.
§63.6(j)	Presidential Compliance Exemption	Yes.
§63.7(a)(1)-(2)	Performance Test Dates	Yes, except substitute 150 days for 180 days.
§63.7(a)(3)	Section 114 Authority	Yes, and this paragraph also applies to flare compliance assessments as specified under §63.997(b)(2).
§63.7(b)(1)	Notification of Performance Test	Yes.
§63.7(b)(2)	Notification of Rescheduling	Yes.
§63.7(c)	Quality Assurance/Test Plan	Yes, except the test plan must be submitted with the notification of the performance test if the control device controls batch process vents.
§63.7(d)	Testing Facilities	Yes.
§63.7(e)(1)	Conditions for Conducting Performance Tests	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]** except that performance tests for batch process vents must be conducted under worst-case conditions as specified in §63.2460. No, beginning on and after **[date 3 years after date of**

		publication of final rule in the Federal Register]. See §63.2450(g)(6).
§63.7(e)(2)	Conditions for Conducting Performance Tests	Yes.
§63.7(e)(3)	Test Run Duration	Yes.
§63.7(e)(4)	Administrator's Authority to Require Testing	Yes.
§63.7(f)	Alternative Test Method	Yes.
§63.7(g)	Performance Test Data Analysis	Yes, except this subpart specifies how and when the performance test and performance evaluation results are reported.
§63.7(h)	Waiver of Tests	Yes.
§63.8(a)(1)	Applicability of Monitoring Requirements	Yes.
§63.8(a)(2)	Performance Specifications	Yes.
§63.8(a)(3)	[Reserved]	
§63.8(a)(4)	Monitoring with Flares	Yes, except for flares subject to §63.2450(e)(5).
§63.8(b)(1)	Monitoring	Yes.
§63.8(b)(2)-(3)	Multiple Effluents and Multiple Monitoring Systems	Yes.
§63.8(c)(1)	Monitoring System Operation and Maintenance	Yes.
§63.8(c)(1)(i)	Routine and Predictable SSM	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.8(c)(1)(ii)	SSM not in SSMP	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.8(c)(1)(iii)	Compliance with Operation and Maintenance Requirements	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.8(c)(2)-(3)	Monitoring System Installation	Yes.
§63.8(c)(4)	CMS Requirements	Only for CEMS. Requirements for CPMS are specified in referenced subparts G and SS of part 63. Requirements for COMS do not apply because subpart FFFF does not require continuous opacity monitoring systems (COMS).
§63.8(c)(4)(i)	COMS Measurement and Recording Frequency	No; subpart FFFF does not require COMS.

§63.8(c)(4)(ii)	CEMS Measurement and Recording Frequency	Yes.
§63.8(c)(5)	COMS Minimum Procedures	No. Subpart FFFF does not contain opacity or VE limits.
§63.8(c)(6)	CMS Requirements	Only for CEMS; requirements for CPMS are specified in referenced subparts G and SS of this part 63. Requirements for COMS do not apply because subpart FFFF does not require COMS.
§63.8(c)(7)-(8)	CMS Requirements	Only for CEMS. Requirements for CPMS are specified in referenced subparts G and SS of part 63. Requirements for COMS do not apply because subpart FFFF does not require COMS.
§63.8(d)(1)	CMS Quality Control	Only for CEMS.
§63.8(d)(2)	CMS Quality Control	Only for CEMS.
§63.8(d)(3)	CMS Quality Control	Yes, only for CEMS before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**. See §63.2450(j)(6).
§63.8(e)	CMS Performance Evaluation	Only for CEMS, except this subpart specifies how and when the performance evaluation results are reported. Section 63.8(e)(5)(ii) does not apply because subpart FFFF does not require COMS.
§63.8(f)(1)-(5)	Alternative Monitoring Method	Yes, except you may also request approval using the precompliance report.
§63.8(f)(6)	Alternative to Relative Accuracy Test	Only applicable when using CEMS to demonstrate compliance, including the alternative standard in §63.2505.
§63.8(g)(1)-(4)	Data Reduction	Only when using CEMS, including for the alternative standard in §63.2505, except that the requirements for COMS do not apply because subpart FFFF has no opacity or VE limits, and §63.8(g)(2) does not apply because data reduction requirements for CEMS are specified in §63.2450(j).
§63.8(g)(5)	Data Reduction	No. Requirements for CEMS are specified in §63.2450(j). Requirements for CPMS are specified in referenced subparts G and SS of this part 63.
§63.9(a)	Notification Requirements	Yes.
§63.9(b)(1)-(5)	Initial Notifications	Yes.
§63.9(c)	Request for Compliance Extension	Yes.
§63.9(d)	Notification of Special Compliance Requirements for New Source	Yes.
§63.9(e)	Notification of Performance Test	Yes.

§63.9(f)	Notification of VE/Opacity Test	No.
§63.9(g)	Additional Notifications When Using CMS	Only for CEMS. Section 63.9(g)(2) does not apply because subpart FFFF does not require COMS.
§63.9(h)(1)-(6)	Notification of Compliance Status	Yes, except 63.9(h)(2)(i)(A) through (G) and (ii) do not apply because 63.2520(d) specifies the required contents and due date of the notification of compliance status report.
§63.9(i)	Adjustment of Submittal Deadlines	Yes.
§63.9(j)	Change in Previous Information	No, §63.2520(e) specifies reporting requirements for process changes.
§63.10(a)	Recordkeeping/Reporting	Yes.
§63.10(b)(1)	Recordkeeping/Reporting	Yes.
§63.10(b)(2)(i)	Records related to SS	No, see §§63.2450(e) and 63.2525 for recordkeeping requirements.
§63.10(b)(2)(ii)	Recordkeeping relevant to SSM periods and CMS	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**. See §§63.2525(h) and 63.2525(l).
§63.10(b)(2)(iii)	Records related to maintenance of air pollution control equipment	Yes.
§63.10(b)(2)(iv)	Recordkeeping relevant to SSM periods and CMS	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.10(b)(2)(v)	Recordkeeping relevant to SSM periods and CMS	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.10(b)(2)(vi), (x), and (xi)	CMS Records	Only for CEMS; requirements for CPMS are specified in referenced subparts G and SS of this part 63.
§63.10(b)(2) (vii)-(ix)	Records	Yes.
§63.10(b)(2)(xii)	Records	Yes.

§63.10(b)(2)(xiii)	Records	Only for CEMS.
§63.10(b)(2)(xiv)	Records	Yes.
§63.10(b)(3)	Records	Yes.
§63.10(c)(1)-(6),(9)-(14)	Records	Only for CEMS. Recordkeeping requirements for CPMS are specified in referenced subparts G and SS of this part 63.
§63.10(c)(7)-(8)	Records	No. Recordkeeping requirements are specified in §63.2525.
§63.10(c)(15)	Records	Yes, before **[date 3 years after date of publication of final rule in the Federal Register]**, but only for CEMS. No, beginning on and after **[date 3 years after date of publication of final rule in the Federal Register]**.
§63.10(d)(1)	General Reporting Requirements	Yes.
§63.10(d)(2)	Report of Performance Test Results	Yes, before **[date 60 days after date of publication of final rule in the Federal Register]**. No, beginning on and after **[date 60 days after date of publication of final rule in the Federal Register]**.
§63.10(d)(3)	Reporting Opacity or VE Observations	No.
§63.10(d)(4)	Progress Reports	Yes.
§63.10(d)(5)(i)	Periodic Startup, Shutdown, and Malfunction Reports	No, §63.2520(e)(4) and (5) specify the SSM reporting requirements.
§63.10(d)(5)(ii)	Immediate SSM Reports	No.
§63.10(e)(1)	Additional CEMS Reports	Yes.
§63.10(e)(2)(i)	Additional CMS Reports	Only for CEMS, except this subpart specifies how and when the performance evaluation results are reported.
§63.10(e)(2)(ii)	Additional COMS Reports	No. Subpart FFFF does not require COMS.
§63.10(e)(3)	Reports	No. Reporting requirements are specified in §63.2520.
§63.10(e)(3)(i)-(iii)	Reports	No. Reporting requirements are specified in §63.2520.
§63.10(e)(3)(iv)-(v)	Excess Emissions Reports	No. Reporting requirements are specified in §63.2520.

§63.10(e)(3)(iv)-(v)	Excess Emissions Reports	No. Reporting requirements are specified in §63.2520.
§63.10(e)(3)(vi)-(viii)	Excess Emissions Report and Summary Report	No. Reporting requirements are specified in §63.2520.
§63.10(e)(4)	Reporting COMS data	No.
§63.10(f)	Waiver for Recordkeeping/Reporting	Yes.
§63.11	Control device requirements for flares and work practice requirements for equipment leaks	Yes, except for flares subject to §63.2450(e)(5).
§63.12	Delegation	Yes.
§63.13	Addresses	Yes.
§63.14	Incorporation by Reference	Yes.
§63.15	Availability of Information	Yes.

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