ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 60 and 63

[EPA–HQ–OAR–2022–0730; FRL–9327–01–OAR]

RIN 2060–AV71

New Source Performance Standards for the Synthetic Organic Chemical Manufacturing Industry and National Emission Standards for Hazardous Air Pollutants for the Synthetic Organic Chemical Manufacturing Industry and Group I & II Polymers and Resins Industry

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is proposing amendments to the New Source Performance Standards (NSPS) that apply to the Synthetic Organic Chemical Manufacturing Industry (SOCMI) and to the National Emission Standards for Hazardous Air Pollutants (NESHAP) that apply to the SOCMI (more commonly referred to as the Hazardous Organic NESHAP or HON) and Group I and II Polymers and Resins Industries (P&R I and P&R II). The EPA is proposing decisions resulting from the Agency's technology review of the HON, P&R I, and P&R II, and its eight-year review of the NSPS that apply to the SOCMI. The EPA is also proposing amendments to the NSPS for equipment leaks of volatile organic compounds (VOC) in SOCMI based on its reconsideration of certain issues raised in an administrative petition for reconsideration. Furthermore, the EPA is proposing to strengthen the emission standards for ethylene oxide (EtO) emissions and chloroprene emissions after considering the results of a risk assessment for the HON and Neoprene Production processes subject to P&R I. Lastly, the EPA is proposing to remove exemptions from standards for periods of startup, shutdown, and malfunction (SSM), to add work practice standards for such periods where appropriate, and to add provisions for electronic reporting. We estimate that the proposed amendments to the NESHAP would reduce hazardous air pollutants (HAP) emissions (excluding EtO and chloroprene) from the SOCMI, P&R I, and P&R II sources by approximately 1,123 tons per year (tpy), reduce EtO emissions from HON processes by approximately 58 tpy, and reduce chloroprene emissions from Neoprene Production processes in P&R I by approximately 14 tpy. We also estimate that these proposed amendments to the NESHAP will reduce excess emissions of HAP from flares in the SOCMI and P&R I source categories by an additional 4,858 tpy. Lastly, we estimate that the proposed amendments to the NSPS would reduce VOC emissions from the SOCMI source category by approximately 1,609 tpy.

DATES:

Comments. Comments must be received on or before June 26, 2023. 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 May 25, 2023.

Public hearing: The EPA will hold a virtual public hearing on May 16, 2023. See **SUPPLEMENTARY INFORMATION** for information on the public hearing.

ADDRESSES: You may send comments, identified by Docket ID No. EPA–HQ–OAR–2022–0730, 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–2022–0730 in the subject line of the message.
- *Fax:* (202) 566–9744. Attention Docket ID No. EPA–HQ–OAR–2022–0730.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA–HQ–OAR–2022–0730, 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: Mr. Andrew Bouchard, Sector Policies and Programs Division (E143–01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–4036; and email address: *bouchard.andrew@epa.gov.*

SUPPLEMENTARY INFORMATION:

Participation in virtual public hearing. The public hearing will be held via virtual platform on May 16, 2023. The hearing will convene at 11:00 a.m. Eastern Time (ET) and will conclude at 7:00 p.m. ET. The EPA may close a session 15 minutes after the last pre-registered speaker has testified if there are not additional speakers. The EPA will announce further details on the virtual public hearing website at *https://www.epa.gov/stationary-sources-air-pollution/synthetic-organic-chemical-manufacturing-industry-organic-national, https://www.epa.gov/stationary-sources-air-pollution/group-i-polymers-and-resins-national-emission-standards-hazardous,* and *https://www.epa.gov/stationary-sources-air-pollution/epoxy-resins-production-and-non-nylon-polyamides-national-emission.* If the EPA receives a high volume of registrations for the public hearing, we may continue the public hearing on May 17, 2023.

The EPA will begin pre-registering speakers for the hearing no later than 1 business day following the publication of this document in the **Federal Register**. The EPA will accept registrations on an individual basis. To register to speak at the virtual hearing, please use the online registration form available at any of the following websites: *https://www.epa.gov/stationary-sources-air-pollution/synthetic-organic-chemical-manufacturing-industry-organic-national, https://www.epa.gov/stationary-sources-air-pollution/group-i-polymers-and-resins-national-emission-standards-hazardous,* or *https://www.epa.gov/stationary-sources-air-pollution/epoxy-resins-production-and-non-nylon-polyamides-national-emission;* or contact the public hearing team at (888) 372–8699 or by email at *SPPDpublichearing@epa.gov.* The last day to pre-register to speak at the hearing will be May 10, 2023. Prior to the hearing, the EPA will post a general agenda that will list pre-registered speakers in approximate order at: *https://www.epa.gov/stationary-sources-air-pollution/synthetic-organic-chemical-manufacturing-industry-organic-national, https://www.epa.gov/stationary-sources-air-pollution/group-i-polymers-and-resins-national-emission-standards-hazardous,* and *https://www.epa.gov/stationary-sources-air-pollution/epoxy-resins-production-and-*

non-nylon-polyamides-national-emission.

The EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearings to run either ahead of schedule or behind schedule.

Each commenter will have 4 minutes to provide oral testimony. The EPA encourages commenters to submit a copy of their oral testimony as written comments to the rulemaking docket.

The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral testimony and supporting information presented at the public hearing.

Please note that any updates made to any aspect of the hearing will be posted online at *https://www.epa.gov/stationary-sources-air-pollution/synthetic-organic-chemical-manufacturing-industry-organic-national, https://www.epa.gov/stationary-sources-air-pollution/group-i-polymers-and-resins-national-emission-standards-hazardous,* and *https://www.epa.gov/stationary-sources-air-pollution/epoxy-resins-production-and-non-nylon-polyamides-national-emission.* While the EPA expects the hearing to go forward as set forth above, please monitor these websites or contact the public hearing team at (888) 372–8699 or by email at *SPPDpublichearing@epa.gov* to determine if there are any updates. The EPA does not intend to publish a document in the **Federal Register** announcing updates.

If you require the services of a translator or a special accommodation such as audio description, please pre-register for the hearing with the public hearing team and describe your needs by May 2, 2023. The EPA may not be able to arrange accommodations without advanced notice.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA–HQ–OAR–2022–0730. All documents in the docket are listed in *https://www.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. With the exception of such material, publicly available docket materials are available electronically in *https://www.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–2022–0730. 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 electronically to *https://www.regulations.gov/* any information that you consider to be CBI or other information whose disclosure is restricted by statue. This type of information should be submitted 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/.* 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, note the docket ID, mark the outside of the digital storage media as CBI, and 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 and note the docket ID. 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.

Our preferred method to receive CBI is for it to be transmitted electronically using email attachments, File Transfer Protocol, or other online file sharing services (*e.g.,* Dropbox, OneDrive, Google Drive). Electronic submissions must be transmitted directly to the Office of Air Quality Planning and Standards (OAQPS) CBI Office at the email address *oaqpscbi@epa.gov* and, as described above, should include clear CBI markings and note the docket ID. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email *oaqpscbi@epa.gov* to request a file transfer link. If sending CBI information through the postal service, please send it 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–2022–0730. The mailed CBI material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope.

Preamble acronyms and abbreviations. Throughout this preamble the use of ''we,'' ''us,'' or ''our'' is intended to refer to the EPA. 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:

ACS American Community Survey
ADAF age-dependent adjustment factor
AEGL acute exposure guideline levels
AERMOD American Meteorological Society/EPA Regulatory Model dispersion modeling system
AIHA American Industrial Hygiene Association
AMEL alternative means of emission limitation
APCD air pollution control device
ATSDR Agency for Toxic Substances and Disease Registry
1–BP 1-bromopropane
BAAQMD Bay Area Air Quality Management District
BACT Best Available Control Technology
BLR basic liquid epoxy resins
BPT benefit per-ton
BSER best system of emissions reduction
BTU British thermal units
CAA Clean Air Act
CBI Confidential Business Information
CDX Central Data Exchange
CEDRI Compliance and Emissions Data Reporting Interface
CFR Code of Federal Regulations
CMAS Chemical Manufacturing Area Sources
CMPU chemical manufacturing process unit
CO carbon monoxide
CO_2 carbon dioxide
EAV equivalent annual value
ECHO Enforcement and Compliance History Online
EFR external floating roof
EIS Emission Information System
EJ environmental justice
EMACT Ethylene Production MACT
EPA Environmental Protection Agency
EPPU elastomer product process unit
ERPG emergency response planning guidelines
ERT Electronic Reporting Tool
EtO Ethylene Oxide
FID flame ionization detector
GACT generally available control technologies
HAP hazardous air pollutant(s)
HCl hydrochloric acid
HEM Human Exposure Model
HF hydrofluoric acid
HON Hazardous Organic NESHAP
HQ hazard quotient
HQ_{REL} hazard quotient reference exposure level
HRVOC highly reactive volatile organic compound
ICR information collection request
IFR internal floating roof
IRIS Integrated Risk Information System
ISA Integrated Science Assessment
ISO International Standards Organization
km kilometer
kPa kilopascals
LAER Lowest Achievable Emission Rate
lb/hr pound per hour
LDAR leak detection and repair
LDSN leak detection sensor network
LEL lower explosive limit
MACT maximum achievable control technology
MPGF multi-point ground flare
MIR maximum individual lifetime [cancer] risk
MON Miscellaneous Organic Chemical Manufacturing NESHAP
MTVP maximum true vapor pressure
NAAQS National Ambient Air Quality Standard
NAICS North American Industry Classification System
NEI National Emissions 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 in the vent gas
NOAEL No Observed Adverse Effects Level
NO_X nitrogen oxides
N_2O nitrous oxide
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
OAR Office of Air and Radiation
OECA Office of Enforcement and Compliance Assurance's
OEL open-ended valves or lines
OGI optical gas imaging
OLD Organic Liquids Distribution
OMB Office of Management and Budget
OSHA Occupational Safety and Health Administration
P&R I Group I Polymers and Resins NESHAP
P&R II Group II Polymers and Resins NESHAP
PDF portable document format
PM2.5 particulate matter 2.5
POM polycyclic organic matter
ppm parts per million
ppmv parts per million by volume
ppmw parts per million by weight
PRA Paperwork Reduction Act
psig pounds per square inch gauge
PRD pressure relief devices
PV present value
RACT Reasonably Available Control Technology
RDL representative detection limit
REL Reference Exposure Level
RFA Regulatory Flexibility Act
RfC reference concentration
RIA Regulatory Impact Analysis
RTR Risk and Technology Reviews
SCAQMD South Coast Air Quality Management District
scmm standard cubic meter per minute
scf standard cubic foot
SOCMI Synthetic Organic Chemical Manufacturing Industry
SO_2 sulfur dioxide
SSM startup, shutdown, and malfunction
TAC Texas Administrative Code
TCEQ Texas Commission on Environmental Quality
TOC total organic carbon
TOSHI target organ-specific hazard index
tpy tons per year
TRE total resource effectiveness
TRIM Total Risk Integrated Methodology
UF uncertainty factor
UMRA Unfunded Mandates Reform Act
UPL upper prediction limit
URE unit risk estimate
U.S.C. United States Code
USGS U.S. Geological Survey
VOC volatile organic compound(s)
WSR wet strength resins

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

I. General Information

A. Executive Summary

1. Purpose of the Regulatory Action

The source categories that are the subject of this proposal are the SOCMI and various polymers and resins source categories. The SOCMI source category includes chemical manufacturing processes producing commodity chemicals while the polymers and resins source categories covered in this action include elastomers production processes and resin production processes that use epichlorohydrin feedstocks (see sections I.B and II.B of this preamble for detailed information about these source categories). The EPA has previously promulgated maximum achievable control technology (MACT) standards for certain processes in the SOCMI source category in the HON rulemaking at 40 CFR part 63, subparts F, G, and H. In 1994, the EPA finalized MACT standards in subparts F, G, and H for SOCMI processes (59 FR 19454),[1] and conducted a residual risk and technology review for these NESHAP in 2006 (71 FR 76603). In 1995, the EPA finalized MACT standards in P&R II (40 CFR part 63, subpart W) for epoxy resin and non-nylon polyamide resin manufacturing processes (60 FR 12670) and completed a residual risk and technology review for these standards in 2008 (73 FR 76220). In 1996, the EPA finalized MACT standards in P&R I (40 CFR part 63, subpart U) for elastomer manufacturing processes in the SOCMI source category (61 FR 46906) and completed residual risk and technology reviews for these standards in 2008 and 2011 (73 FR 76220 and 76 FR 22566).

The EPA has also promulgated NSPS for certain processes in the SOCMI source category. In 1983, the EPA finalized NSPS (40 CFR part 60, subpart VV) for equipment leaks of VOC in SOCMI (48 FR 48328). In 1990, the EPA finalized NSPS (40 CFR part 60, subparts III and NNN) for VOC from air oxidation unit processes and distillation operations (55 FR 26912 and 55 FR 26931). In 1993, the EPA finalized NSPS (40 CFR part 60, subpart RRR) for VOC from reactor processes (58 FR 45948). In 2007, the EPA promulgated NSPS (40 CFR part 60, subpart VVa) for VOC from certain equipment leaks (72 FR 64883), which reflects the EPA's review and revision of the standards in 40 CFR part 60, subpart VV.

The statutory authority for this action is sections 111, 112, 301(a)(1), and 307(d)(7)(B) of the Clean Air Act (CAA). Section 111(b)(1)(B) of the CAA requires the EPA to promulgate standards of performance for new sources in any category of stationary sources that the Administrator has listed pursuant to 111(b)(1)(A). Section 111(a)(1) of the CAA provides that these performance standards are to ''reflect[ ] the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.'' We refer to this level of control as the best system of emission reduction or ''BSER.'' Section 111(b)(1)(B) of the CAA requires the EPA to ''at least every 8 years, review and, if appropriate, revise'' the NSPS.

For NESHAP, CAA section 112(d)(2) requires the EPA to establish MACT standards for listed categories of major sources of HAP. Section 112(d)(6) of the CAA 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 following promulgation of those standards. This is referred to as a ''technology review'' and is required for all standards established under CAA section 112. Section 112(f) of the CAA requires the EPA to assess the risk to public health remaining after the implementation of MACT emission standards promulgated under CAA section 112(d)(2). If the standards for a source category do not provide ''an ample margin of safety to protect public health,'' the EPA must promulgate health-based standards for that source category to further reduce risk from HAP emissions.

Section 301(a)(1) of the CAA authorizes the Administrator to prescribe such regulations as are necessary to carry out his functions under the CAA. Section 307(d)(7)(B) of the CAA requires the reconsideration of a rule only if the person raising an objection to the rule can demonstrate that it was impracticable to raise such objection during the period for public comment or if the grounds for the objection arose after the comment period (but within the time specified for judicial review), and if the objection is of central relevance to the outcome of the rule.

The proposed new NSPS for SOCMI equipment leaks, air oxidation unit processes, distillation operations, and reactor processes (*i.e.,* NSPS subparts VVb, IIIa, NNNa, and RRRa, respectively) are based on the Agency's review of the current NSPS (subparts VVa, III, NNN, and RRR) pursuant to CAA section 111(b)(1)(B), which requires that the EPA review the NSPS every eight years and, if appropriate, revise. In addition, the EPA is proposing amendments to the NSPS for equipment leaks of VOC in SOCMI based on its reconsideration of certain aspects of subparts VV and VVa that were raised in an administrative petition and of which the Agency has granted reconsideration pursuant to section 307(d)(7)(B) of the CAA. These proposed amendments are primarily included in the new NSPS subpart VVb; the EPA is not proposing to make these changes in subparts VV and VVa because, in light of the time that has passed since the promulgation of these two subparts, the EPA finds it inappropriate to now change the obligations of sources subject to these subparts after all these years. The proposed amendments to the HON (NESHAP subparts F, G, H, and I), P&R I (NESHAP subpart U), and P&R II (NESHAP subpart W) are based on the Agency's review of the current NESHAP (subparts F, G, H, I, U, and W) pursuant to CAA section 112(d).

Also, due to the development of the EPA's Integrated Risk Information System (IRIS) inhalation unit risk estimate (URE) for chloroprene in 2010, the EPA conducted a CAA section 112(f) risk review for the SOCMI source category and Neoprene Production source category. In the first step of the CAA section 112(f)(2) determination of risk acceptability for this rulemaking, the use of the 2010 chloroprene risk value resulted in the EPA identifying

[1] Around the same time, the EPA set MACT standards for equipment leaks from certain non-SOCMI processes at chemical plants regulated under 40 CFR part 63, subpart I (59 FR 19587).

unacceptable residual cancer risk caused by chloroprene emissions from affected sources producing neoprene subject to P&R I.[2] Consequently, the proposed amendments to P&R I address the EPA review of additional control technologies, beyond those analyzed in the technology review conducted for P&R I, for one affected source producing neoprene and contributing to unacceptable risk. Additionally, in 2016, the EPA updated the IRIS inhalation URE for EtO. In the first step of the CAA section 112(f)(2) determination of risk acceptability for this rulemaking, the use of the updated 2016 EtO risk value resulted in the EPA identifying unacceptable residual cancer risk driven by EtO emissions from HON processes. Consequently, the proposed amendments to the HON also address the EPA review of additional control technologies, beyond those analyzed in the technology review conducted for the HON, focusing on emissions sources emitting EtO that contribute to unacceptable risk.

2. Summary of the Major Provisions of the Regulatory Action in Question

The most significant amendments that we are proposing are described briefly below. However, all of our proposed amendments, including amendments to remove exemptions for periods of SSM, are discussed in detail with rationale in section III of this preamble.

a. HON

We are proposing amendments to the HON for heat exchange systems, process vents, storage vessels, transfer racks, wastewater, and equipment leaks.

i. NESHAP Subpart F

As detailed in section II.B.1.a of this preamble, NESHAP subpart F contains provisions to determine which chemical manufacturing processes at a facility are subject to the HON, monitoring requirements for HAP (*i.e.,* HAP listed in Table 4 of NESHAP subpart F) that may leak into cooling water from heat exchange systems, and requirements for maintenance wastewater. For NESHAP subpart F, we are proposing:

- Compliance dates for all of the proposed HON requirements (see proposed 40 CFR 63.100(k)(10) through (12); and section III.F of this preamble).
- to move all of the definitions from NESHAP subparts G and H (*i.e.,* 40 CFR 63.111 and 40 CFR 63.161, respectively) into the definition section of NESHAP subpart F (see proposed 40 CFR 63.101; and section III.E.5.a of this preamble).
- a new definition for ''in ethylene oxide service'' (for equipment leaks, heat exchange systems, process vents, storage vessels, and wastewater) (see proposed 40 CFR 63.101; and section III.B.2.a of this preamble).
- new operating and monitoring requirements for flares; and a requirement that owners and operators can send no more than 20 tons of EtO to all of their flares combined in any consecutive 12-month period (see proposed 40 CFR 63.108; and section III.B.2.a.vi of this preamble).
- sampling and analysis procedures for owners and operators to demonstrate that process equipment does, or does not, meet the proposed definition of being ''in ethylene oxide service'' (see proposed 40 CFR 63.109; and section III.B.2.a.vii of this preamble).

For heat exchange systems, we are proposing:

- To require owners or operators to use the Modified El Paso Method and repair leaks of total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 parts per million by volume (ppmv) or greater (see proposed 40 CFR 63.104(g) through (j); and section III.C.1 of this preamble).
- to require owners or operators to conduct more frequent leak monitoring (weekly instead of quarterly) for heat exchange systems in EtO service and repair leaks within 15 days from the sampling date (in lieu of the current 45-day repair requirement after receiving results of monitoring indicating a leak in the HON), and delay of repair would not be allowed (see proposed 40 CFR 63.104(g)(6) and (h)(6); and section III.B.2.a.iii of this preamble).
- that the current leak monitoring requirements for heat exchange systems at 40 CFR 63.104(b) may be used in limited instances in lieu of using the Modified El Paso Method for heat exchange systems cooling process fluids that will remain in the cooling water if a leak occurs (see proposed 40 CFR 63.104(l); and section III.C.1 of this preamble).

ii. NESHAP Subpart G

As detailed in section II.B.1.b of this preamble, NESHAP subpart G contains requirements for process vents, storage vessels, transfer racks, wastewater streams, and closed vent systems.

For process vents, we are proposing:

- To remove the 50 ppmv and 0.005 standard cubic meter per minute (scmm) Group 1 process vent thresholds from the Group 1 process vent definition, and instead require owners and operators of process vents that emit greater than or equal to 1.0 pound per hour (lb/hr) of total organic HAP to reduce emissions of organic HAP using a flare meeting the proposed operating and monitoring requirements for flares in NESHAP subpart F; or reduce emissions of total organic HAP or total organic compounds (TOC) by 98 percent by weight or to an exit concentration of 20 ppmv, whichever is less stringent (see proposed 40 CFR 63.101 and 40 CFR 63.113(a)(1) and (2); and section III.C.3.a of this preamble).
- to remove the total resource effectiveness (TRE) concept in its entirety (see proposed 40 CFR 63.113(a)(4); and section III.C.3.a of this preamble).
- to add an emission standard of 0.054 nanograms per dry standard cubic meter (ng/dscm) at 3 percent oxygen (toxic equivalency basis) for dioxins and furans from chlorinated process vents (see proposed 40 CFR 63.113(a)(5); and section III.D.5. of this preamble).
- that owners and operators reduce emissions of EtO from process vents in EtO service by either: (1) Venting emissions through a closed-vent system to a control device that reduces EtO by greater than or equal to 99.9 percent by weight, to a concentration less than 1 ppmv for each process vent, or to less than 5 lb/yr for all combined process vents; or (2) venting emissions through a closed-vent system to a flare meeting the proposed operating and monitoring requirements for flares in NESHAP subpart F (see proposed 40 CFR 63.113(j), 40 CFR 63.108, and 40 CFR 63.124; and section III.B.2.a.i of this preamble).[3]
- a work practice standard for maintenance vents requiring that, prior to opening process equipment to the atmosphere, the equipment must either: (1) Be drained and purged to a closed system so that the hydrocarbon content is less than or equal to 10 percent of the lower explosive limit (LEL); (2) be opened and vented to the atmosphere only if the 10-percent LEL cannot be demonstrated and the pressure is less than or equal to 5 pounds per square inch gauge (psig), provided there is no active purging of the equipment to the atmosphere until the LEL criterion is

[2] As discussed further in section III.B of this preamble, chloroprene emissions from HON processes do not on their own present unacceptable cancer risk.

[3] We are also proposing to remove the option to allow use of a design evaluation in lieu of performance testing to demonstrate compliance for controlling various emission sources in ethylene oxide service. In addition, owners or operators that choose to control emissions with a non-flare control device would be required to conduct an initial performance test on each control device in ethylene oxide service to verify performance at the required level of control, and would also be required to conduct periodic performance testing on non-flare control devices in ethylene oxide service every 5 years (see proposed 40 CFR 63.124).

met; (3) be opened when there is less than 50 lbs of VOC that may be emitted to the atmosphere; or (4) for installing or removing an equipment blind, depressurize the equipment to 2 psig or less and maintain pressure of the equipment where purge gas enters the equipment at or below 2 psig during the blind flange installation, provided none of the other proposed work practice standards can be met (see proposed 40 CFR 63.113(k); and section III.D.4.a of this preamble).

- that owners and operators of process vents in EtO service would not be allowed to use the proposed maintenance vent work practice standards; instead, owners and operators would be prohibited from releasing more than 1.0 ton of EtO from all maintenance vents combined in any consecutive 12-month period (see proposed 40 CFR 63.113(k)(4); and section III.B.2.a.v of this preamble).

For storage vessels, we are proposing:

- That owners and operators reduce emissions of EtO from storage vessels in EtO service by either: (1) Venting emissions through a closed-vent system to a control device that reduces EtO by greater than or equal to 99.9 percent by weight or to a concentration less than 1 ppmv for each storage vessel vent; or (2) venting emissions through a closed-vent system to a flare meeting the proposed operating and monitoring requirements for flares in NESHAP subpart F (see proposed 40 CFR 63.119(a)(5), 40 CFR 63.108, and 40 CFR 63.124; and section III.B.2.a.i of this preamble).[4]
- a work practice standard to allow storage vessels to be vented to the atmosphere once a storage vessel degassing concentration threshold is met (*i.e.,* less than 10 percent of the LEL) and all standing liquid has been removed from the vessel to the extent practicable (see proposed 40 CFR 63.119(a)(6); and section III.D.4.b of this preamble).
- to define pressure vessel and remove the exemption for ''pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere'' from the definition of storage vessel (see proposed 40 CFR 63.101); and require initial and annual performance testing using EPA Method 21 of 40 CFR part 60, appendix A–7 to demonstrate no detectable emissions (*i.e.,* would be required to meet a leak definition of 500 parts per million (ppm) at each point on the pressure vessel where total organic HAP could potentially be emitted) (see proposed 40 CFR 63.119(a)(7); and section III.D.6 of this preamble).
- to require all openings in an internal floating roof (IFR) (except those for automatic bleeder vents (vacuum breaker vents), rim space vents, leg sleeves, and deck drains) be equipped with a deck cover; and the deck cover would be required to be equipped with a gasket between the cover and the deck (see proposed 40 CFR 63.119(b)(5)(ix); and section III.C.2 of this preamble).
- controls for guidepoles for all storage vessels equipped with an IFR (see proposed 40 CFR 63.119(b)(5)(x), (xi), and (xii); and section III.C.2 of this preamble).
- a work practice standard that would apply during periods of planned routine maintenance of a control device, fuel gas system, or process equipment that is normally used for compliance with the storage vessel emissions control requirements; owners and operators would not be permitted to fill the storage vessel during these periods (such that the vessel would emit HAP to the atmosphere for a limited amount of time due to breathing losses only while working losses are controlled) (see proposed 40 CFR 63.119(e)(7); and section III.D.4.c of this preamble).
- to revise the Group 1 storage capacity criterion (for storage vessels at existing sources) from between 75 cubic meters (m^3) and 151 m^3 to between 38 m^3 and 151 m^3 (see proposed Table 5 to subpart G; and section III.C.2 of this preamble).
- to revise the Group 1 stored-liquid maximum true vapor pressure (MTVP) of total organic HAP threshold (for storage vessels at existing sources) from greater than or equal to 13.1 kilopascals (kPa) to greater than or equal to 6.9 kPa (see proposed Table 5 to subpart G; and section III.C.2 of this preamble).

For transfer racks, we are proposing:

- To remove the exemption for transfer operations that load ''at an operating pressure greater than 204.9 kilopascals'' from the definition of transfer operation (see proposed 40 CFR 63.101; and section III.D.8 of this preamble).

For wastewater streams, we are proposing:

- To revise the Group 1 wastewater stream threshold to include wastewater streams in EtO service (*i.e.,* wastewater streams with total annual average concentration of EtO greater than or equal to 1 ppm by weight at any flow rate) (see proposed 40 CFR 63.132(c)(1)(iii) and (d)(1)(ii); and section III.B.2.a.iv of this preamble).
- to prohibit owners and operators from injecting wastewater into or disposing of water through any heat exchange system in a chemical manufacturing process unit (CMPU) meeting the conditions of 40 CFR 63.100(b)(1) through (3) if the water contains any amount of EtO, has been in contact with any process stream containing EtO, or the water is considered wastewater as defined in 40 CFR 63.101 (see proposed 40 CFR 63.104(k); and section III.B.2.a.iv of this preamble).

For closed vent systems, we are proposing:

- That owners and operators may not bypass an air pollution control device (APCD) at any time (see proposed 40 CFR 63.114(d)(3), 40 CFR 63.127(d)(3), and 40 CFR 63.148(f)(4)), that a bypass is a violation, and that owners and operators must estimate and report the quantity of organic HAP released (see proposed 40 CFR 63.118(a)(5), 40 CFR 63.130(a)(2)(iv), 40 CFR 63.130(b)(3), 40 CFR 63.130(d)(7), and 40 CFR 63.148(i)(3)(iii) and (j)(4); and section III.D.3 of this preamble).

iii. NESHAP Subparts H and I

As detailed in sections II.B.1.c and II.B.1.d of this preamble, NESHAP subparts H and I contain requirements for equipment leaks. Also, due to space limitations in the HON, we are proposing fenceline monitoring (*i.e.,* monitoring along the perimeter of the facility's property line) in NESHAP subpart H for all emission sources. For equipment leaks and fenceline monitoring, we are proposing:

- That all connectors in EtO service would be required to be monitored monthly at a leak definition of 100 ppm with no skip period, and delay of repair would not be allowed (see proposed 40 CFR 63.174(a)(3), (b)(3)(vi), and (g)(3), and 40 CFR 63.171(f); and section III.B.2.a.ii of this preamble).
- that all gas/vapor and light liquid valves in EtO service would be required to be monitored monthly at a leak definition of 100 ppm with no skip period, and delay of repairs would not be allowed (see proposed 40 CFR 63.168(b)(2)(iv) and (d)(5), and 40 CFR 63.171(f); and section III.B.2.a.ii of this preamble).
- that all light liquid pumps in EtO service would be required to be monitored monthly at a leak definition of 500 ppm, and delay of repairs would not be allowed (see proposed 40 CFR 63.163(a)(1)(iii), (b)(2)(iv), (c)(4), and (e)(7), and 40 CFR 63.171(f); and section III.B.2.a.ii of this preamble).
- a work practice standard for pressure relief devices (PRDs) that vent to the atmosphere that would require owners and operators to implement at least three prevention measures, perform root cause analysis and corrective action in the event that a PRD

[4] See footnote 3.

does release emissions directly to the atmosphere, and monitor 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 (see proposed 40 CFR 63.165(e); and section III.D.2 of this preamble).

• that all surge control vessels and bottoms receivers would be required to meet the requirements we are proposing for process vents (see proposed 40 CFR 63.170(b); and section III.D.7 of this preamble).

• that owners and operators may not bypass an APCD at any time (see proposed 40 CFR 63.114(d)(3), 40 CFR 63.127(d)(3), and 40 CFR 63.148(f)(4)), that a bypass is a violation, and that owners and operators must estimate and report the quantity of organic HAP released (see proposed 40 CFR 63.118(a)(5), 40 CFR 63.130(a)(2)(iv), 40 CFR 63.130(b)(3), 40 CFR 63.130(d)(7), and 40 CFR 63.148(i)(3)(iii) and (j)(4); and section III.D.3 of this preamble).

• to add a fenceline monitoring standard that requires owners and operators to monitor for any of 6 specific HAP they emit (*i.e.,* benzene, 1,3-butadiene, ethylene dichloride, vinyl chloride, EtO, and chloroprene) and conduct root cause analysis and corrective action upon exceeding the annual average concentration action level set forth for each HAP (see proposed 40 CFR 63.184; and section III.C.7 of this preamble).

b. P&R I

As detailed in section II.B.2 of this preamble, P&R I (40 CFR part 63, subpart U) generally follows and refers to the requirements of the HON, with additional requirements for batch process vents. We are proposing amendments to P&R I for heat exchange systems, process vents, storage vessels, wastewater, and equipment leaks. For NESHAP subpart U, we are proposing:

• Compliance dates for all of the proposed P&R I requirements (see proposed 40 CFR 63.481(n) and (o); and section III.F of this preamble).

• new operating and monitoring requirements for flares (see proposed 40 CFR 63.508; and section III.D.1 of this preamble).

• removing provisions to assert an affirmative defense to civil penalties (see proposed 40 CFR 63.480(j)(4); and section III.E.2 of this preamble).

• to reference the same fenceline monitoring requirements that we are proposing in Subpart H for HON sources.

• sampling and analysis procedures for owners and operators of affected sources producing neoprene to demonstrate that process equipment does, or does not, meet the proposed definition of being ''in chloroprene service'' (see proposed 40 CFR 63.509; and section III.B.2.b.iv of this preamble).

• A facility-wide chloroprene emissions cap of 3.8 tpy in any consecutive 12-month period for all neoprene production emission sources (see proposed 40 CFR 63.483(a)(10); and section III.B.2.b.v of this preamble).

For heat exchange systems, we are proposing:

• To add the same requirements (except for EtO standards) listed in section I.A.2.a.i of this preamble that we are proposing for heat exchange systems subject to the HON to also apply to heat exchange systems subject to P&R I (see proposed 40 CFR 63.502(n)(7); and section III.C.1 of this preamble).

For continuous front-end process vents, we are proposing:

• That owners and operators reduce emissions of chloroprene from continuous front-end process vents in chloroprene service at affected sources producing neoprene by venting emissions through a closed-vent system to a non-flare control device that reduces chloroprene by greater than or equal to 99.9 percent by weight, to a concentration less than 1 ppmv for each process vent, or to less than 5 lb/yr for all combined process vents (see proposed 40 CFR 63.485(y), and 40 CFR 63.510; and sections III.B.2.b.i of this preamble).[5]

• to add the same requirements (except for EtO standards) listed in section I.A.2.a.ii of this preamble that we are proposing for process vents subject to the HON to also apply to continuous front-end process vents subject to P&R I (see proposed 40 CFR 63.482, 40 CFR 63.485(l)(6), (o)(6), (p)(5), and (x), 40 CFR 63.113(a)(1) and (2), 40 CFR 63.113(a)(4), 40 CFR 63.113(k), 40 CFR 63.114(a)(5)(v); and section III.C.3 of this preamble).

• that continuous front-end process vents in chloroprene service would not be allowed to use the proposed maintenance vent work practice standards; instead, owners and operators would be prohibited from releasing more than 1.0 ton of chloroprene from all maintenance vents combined in any consecutive 12-month period (see proposed 40 CFR 63.485(z); and section III.B.2.b.iii of this preamble).

• to add an emission standard of 0.054 ng/dscm at 3 percent oxygen (toxic equivalency basis) for dioxins and furans from chlorinated continuous front-end process vents (see proposed 40 CFR 63.485(x); and section III.D.5. of this preamble).

For batch front-end process vents, we are proposing:

• To remove the annual organic HAP emissions mass flow rate, cutoff flow rate, and annual average batch vent flow rate Group 1 process vent thresholds from the Group 1 batch front-end process vent definition (these thresholds are currently determined on an individual batch process vent basis). Instead, owners and operators of batch front-end process vents that release total annual organic HAP emissions greater than or equal to 4,536 kilograms per year (kg/yr) (10,000 pounds per year (lb/yr)) from all batch front-end process vents combined would be required to reduce emissions of organic HAP from these process vents using a flare meeting the proposed operating and monitoring requirements for flares; or reduce emissions of organic HAP or total organic carbon (TOC) by 90 percent by weight (or to an exit concentration of 20 ppmv if considered an ''aggregate batch vent stream'' as defined by the rule) (see proposed 40 CFR 63.482, 40 CFR 63.487I(1)(iv), 40 CFR 63.488(d)(2), (e)(4), (f)(2), and (g)(3); and section III.C.3 of this preamble).

• to add the same chloroprene standards that we are proposing for continuous front-end process for batch front-end process vents at affected sources producing neoprene (see proposed 40 CFR 63.487(j); and section III.B.2.b.i of this preamble).

• to add the same work practice standards that we are proposing for maintenance vents as described for HON to P&R I (see proposed 40 CFR 63.487(i); and section III.D.4.a of this preamble).

• that batch front-end process vents in chloroprene service would not be allowed to use the proposed maintenance vent work practice standards; instead, owners and operators would be prohibited from releasing more than 1.0 tons of chloroprene from all maintenance vents combined in any consecutive 12-month period (see proposed 40 CFR 63.487(i)(4); and section III.B.2.b.v of this preamble).

• to add an emission standard of 0.054 ng/dscm at 3 percent oxygen

[5] We are also proposing to remove the option to allow use of a design evaluation in lieu of performance testing to demonstrate compliance for controlling various emission sources in chloroprene service. In addition, owners or operators would be required to conduct an initial performance test on each non-flare control device in chloroprene service to verify performance at the required level of control, and would also be required to conduct periodic performance testing on non-flare control devices in chloroprene service every 5 years (see proposed 40 CFR 63.510).

(toxic equivalency basis) for dioxins and furans from chlorinated batch front-end process vents (see proposed 40 CFR 63.487(a)(3) and (b)(3); and section III.D.5. of this preamble).

For storage vessels, we are proposing:

• That owners and operators reduce emissions of chloroprene from storage vessels in chloroprene service at affected sources producing neoprene by venting emissions through a closed-vent system to a non-flare control device that reduces chloroprene by greater than or equal to 99.9 percent by weight or to a concentration less than 1 ppmv for each storage vessel vent (see proposed 40 CFR 63.484(u) and 40 CFR 63.510; and section III.B.2.b.i of this preamble).[6]

• to add the same requirements (except for EtO standards) listed in section I.A.2.a.ii of this preamble that we are proposing for storage vessels subject to the HON except the proposed requirements would apply to storage vessels subject to P&R I (see proposed 40 CFR 63.484(t); and section III.C.2 of this preamble).

For wastewater streams, we are proposing:

• To revise the Group 1 wastewater stream threshold to include wastewater streams in chloroprene service at affected sources producing neoprene (*i.e.,* wastewater streams with total annual average concentration of chloroprene greater than or equal to 10 parts per million by weight (ppmw) at any flow rate) (see proposed 40 CFR 63.501(a)(10)(iv); and section III.B.2.b.ii of this preamble).

• to prohibit owners and operators from injecting wastewater into or disposing of water through any heat exchange system in an elastomer product process unit (EPPU) if the water contains any amount of chloroprene, has been in contact with any process stream containing chloroprene, or the water is considered wastewater as defined in 40 CFR 63.482 (see proposed 40 CFR 63.502(n)(8); and section III.B.2.b.ii of this preamble).

For equipment leaks and fenceline monitoring, we are proposing:

• To add the same requirements (except for EtO standards) listed in section I.A.2.a.iii of this preamble that we are proposing for equipment leaks subject to the HON except the proposed requirements would apply to equipment leaks subject to P&R I (see proposed 40 CFR 63.502(a)(1) through (a)(6); and sections III.D.2 and III.D.3 of this preamble).

• to cross-reference P&R I facilities to the same fenceline monitoring standard in the HON (see proposed 40 CFR 63.184) that requires owners and operators to monitor for any of 6 specific HAP they emit (*i.e.,* benzene, 1,3-butadiene, ethylene dichloride, vinyl chloride, EtO, and chloroprene) and conduct root cause analysis and corrective action upon exceeding the annual average concentration action level set forth for each HAP (see section III.C.7 of this preamble).

c. P&R II

The most significant amendments that we are proposing for P&R II (40 CFR part 63, subpart W) are to add requirements for heat exchange systems (see proposed 40 CFR 63.523(d) and 40 CFR 63.524(c); and section III.D.9 of this preamble) and require owners and operators of wet strength resins (WSR) sources to comply with both the equipment leak standards in the HON and the HAP emissions limitation for process vents, storage tanks, and wastewater systems (see proposed 40 CFR 63.524(a)(3) and (b)(3); and section III.D.10 of this preamble). We are also proposing to add the same dioxin and furan emission standard of 0.054 ng/dscm at 3 percent oxygen (toxic equivalency basis) for chlorinated process vents as in the HON and P&R I (see proposed 40 CFR 63.523(e) (for process vents associated with each existing, new, or reconstructed affected basic liquid epoxy resins (BLR) source), 40 CFR 63.524(a)(3) (for process vents associated with each existing affected WSR source), and 40 CFR 63.524(b)(3) (for process vents associated with each new or reconstructed affected WSR source)).

d. NSPS Subparts III, NNN, and RRR

We are proposing to amend the applicability of NSPS subparts III, NNN, and RRR so that they would only apply to sources constructed, reconstructed, or modified on or before April 25, 2023. Affected facilities that are constructed, reconstructed, or modified after April 25, 2023 would be subject to the new proposed NSPS subparts IIIa, NNNa, and RRRa (see section A.2.e of this preamble).

e. NSPS Subparts IIIa, NNNa, and RRRa

Rather than comply with a TRE concept which is currently used in NSPS subparts III, NNN, and RRR, we are proposing in new NSPS subparts IIIa, NNNa, and RRRa to require owners and operators to reduce emissions of total organic carbon (TOC) (minus methane and ethane) from all vent streams of an affected facility (*i.e.,* SOCMI air oxidation unit processes, distillation operations, and reactor processes for which construction, reconstruction, or modification occurs after April 25, 2023) by 98 percent by weight or to a concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen, whichever is less stringent, or combust the emissions in a flare meeting the same operating and monitoring requirements for flares that we are proposing for flares subject to the HON. We are also proposing to eliminate the relief valve discharge exemption from the definition of ''vent stream'' such that any relief valve discharge to the atmosphere of a vent stream is a violation of the emissions standard. In addition, we are proposing the same work practice standards for maintenance vents that we are proposing for HON process vents, and the same monitoring requirements that we are proposing for HON process vents for adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite (see section III.C.3.b of this preamble).

f. NSPS Subpart VVa

We are proposing to amend the applicability of the existing NSPS subpart VVa so that it would apply to only sources constructed, reconstructed, or modified after November 6, 2006, and on or before April 25, 2023. Affected facilities that are constructed, reconstructed, or modified after April 25, 2023 would be subject to the new proposed NSPS subpart VVb.

g. NSPS Subpart VVb

We are proposing in a new NSPS subpart VVb the same requirements in NSPS subpart VVa plus requiring that all gas/vapor and light liquid valves be monitored quarterly at a leak definition of 100 ppm and all connectors be monitored once every 12 months at a leak definition of 500 ppm (see section III.C.6.b of this preamble). For each of these two additional requirements, we are also proposing skip periods for good performance.

3. Costs and Benefits

Pursuant to E.O. 12866, the EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis titled *Regulatory Impact Analysis,* (referred to as the RIA in this document) is available in the docket, and is also briefly summarized in section VI of this preamble.

B. Does this action apply to me?

The source categories that are the subject of this proposal include the SOCMI source category (and whose facilities, sources and processes we often refer to as ''HON facilities,'' ''HON sources,'' and ''HON processes'' for purposes of the NESHAP) and several

[6] See footnote 5.

Polymers and Resins Production source categories covered in P&R I and P&R II (see section II.B of this preamble for detailed information about the source categories).[7] The North American Industry Classification System (NAICS) code for SOCMI facilities begins with 325, for P&R I is 325212, and for P&R II is 325211. The list of NAICS codes 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 and/or affected facilities. Federal, state, local, and tribal government entities would not be affected by this proposed action.

As 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), the SOCMI source category is any facility engaged in ''manufacturing processes that produce one or more of the chemicals [listed] that either: (1) Use an organic HAP as a reactant or (2) produce an organic HAP as a product, co-product, by-product, or isolated intermediate.'' [8] In the development of NESHAP for this source category, the EPA considered emission sources associated with: equipment leaks (including leaks from heat exchange systems), process vents, transfer racks, storage vessels, and wastewater collection and treatment systems. The elastomer production source categories in P&R I and resins produced with epichlorohydrin feedstock in P&R II have many similar emission sources with SOCMI sources and are discussed further in section II.B of this preamble.

The EPA Priority List (40 CFR 60.16, 44 FR 49222, August 21, 1979) included ''Synthetic Organic Chemical Manufacturing'' [9] as a source category for which standards of performance were to be promulgated under CAA section 111. In the development of NSPS for this source category, the EPA considered emission sources associated with unit processes, storage and handling equipment, fugitive emission sources, and secondary sources.

C. 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/synthetic-organic-chemical-manufacturing-industry-organic-national, https://www.epa.gov/stationary-sources-air-pollution/group-i-polymers-and-resins-national-emission-standards-hazardous,* and *https://www.epa.gov/stationary-sources-air-pollution/epoxy-resins-production-and-non-nylon-polyamides-national-emission.* Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents at these same websites.

A memorandum showing the edits that would be necessary to incorporate the changes to: 40 CFR part 60, subparts VV, VVa, III, NNN, RRR; 40 CFR part 63, subparts F, G, H and I (HON), U (P&R I), and W (P&R II); and 40 CFR part 60, new subparts VVb, IIIa, NNNa, and RRRa proposed in this action are available in the docket (Docket ID No. EPA–HQ–OAR–2022–0730). Following signature by the EPA Administrator, the EPA also will post a copy of these documents to *https://www.epa.gov/stationary-sources-air-pollution/synthetic-organic-chemical-manufacturing-industry-organic-national, https://www.epa.gov/stationary-sources-air-pollution/group-i-polymers-and-resins-national-emission-standards-hazardous,* and *https://www.epa.gov/stationary-sources-air-pollution/epoxy-resins-production-and-non-nylon-polyamides-national-emission.*

II. Background

A. What is the statutory authority for this action?

1. NESHAP

The statutory authority for this action related to NESHAP 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 and revise the standards as necessary taking into account any ''developments in practices, processes, and control technologies.'' 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.'' In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards in lieu of numerical emission standards.

[7] P&R I includes nine listed elastomer production source categories (*i.e.,* Butyl Rubber Production, Epichlorohydrin Elastomers Production, Ethylene-Propylene Elastomers Production, Hypalon™ Production, Neoprene Production, Nitrile Butadiene Rubber Production, Polybutadiene Rubber Production, Polysulfide Rubber Production, and Styrene-Butadiene Rubber and Latex Production). P&R II includes two listed source categories that use epichlorohydrin feedstock (Epoxy Resins Production and Non-Nylon Polyamides Production).

[8] The original list of chemicals is located in Appendix A (beginning on page A–71) of EPA–450/3–91–030 dated July 1992. Alternatively, the most recent list of chemicals is documented in the HON applicability rule text at 40 CFR 63.100(b)(1) and (2). The original list of organic HAPs for the SOCMI source category is located in Table 3.1 of Section 3.0 of EPA–450/3–91–030.

[9] For readability, we also refer to this as the SOCMI source category for purposes of the NSPS.

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. 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 pursuant 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 Residual Risk Report that the Agency intended to use the 1989 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 upheld the EPA's interpretation that CAA section 112(f)(2) incorporates the approach established in the 1989 Benzene NESHAP. See *Natural Resources Defense Council (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) [10] of approximately 1 in 10 thousand.'' (54 FR 38045). 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) 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 floors that were established in earlier rulemakings. *NRDC* v. *EPA,* 529 F.3d at 1084; *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). The EPA is required to address regulatory gaps, such as missing MACT standards for listed air toxics known to be emitted from major source categories, and any new MACT standards must be established under CAA sections 112(d)(2) and (3), or, in specific circumstances, CAA sections 112(d)(4) or (h). *Louisiana Environmental Action Network (LEAN)* v. *EPA,* 955 F.3d 1088 (D.C. Cir. 2020).

The EPA conducted a residual risk and technology review for the HON in 2006, concluding that there was no need to revise the HON under the provisions of either CAA section 112(f) or 112(d)(6). As part of the residual risk review, the EPA conducted a risk assessment, and based on the results of the risk assessment, determined that the then current level of control called for by the existing MACT standards both reduced HAP emissions to levels that presented an acceptable level of risk and provided an ample margin of safety to protect public health (see 71 FR 76603, December 21, 2006 for additional details). In 2008, the EPA conducted a residual risk and technology review for four of the P&R I source categories (including the Polysulfide Rubber Production, Ethylene-Propylene Elastomers Production, Butyl Rubber Production, and Neoprene Production source categories) and all P&R II source categories (Epoxy Resins Production and Non-Nylon Polyamides Production source categories). In 2011, the EPA completed the residual risk and technology review for the remaining five P&R I source categories (Epichlorohydrin Elastomers Production, Hypalon™ Production, Polybutadiene Rubber Production, Styrene-Butadiene Rubber and Latex Production, and Nitrile Butadiene Rubber Production); and the EPA concluded in these actions that there was no need to revise standards for any of the nine P&R I source categories and two P&R II source categories under the provisions of either CAA section 112(f) or 112(d)(6) (see 73 FR 76220, December 16, 2008 and 77 FR 22566, April 21, 2011 for additional details).

This action constitutes another CAA section 112(d)(6) technology review for the HON, P&R I, and P&R II. This action also constitutes an updated CAA section 112(f) risk review based on new information for the HON and for affected sources producing neoprene subject to P&R I. We note that although there is no statutory CAA obligation under CAA section 112(f) for the EPA to conduct a second residual risk review of the HON or standards for affected sources producing neoprene subject to P&R I, the EPA retains discretion to revisit its residual risk reviews where the Agency deems that is warranted. *See, e.g., Fed. Commc'ns Comm'n* v. *Fox Television Stations, Inc.,* 556 U.S. 502, 515 (2009); *Motor Vehicle Mfrs. Ass'n* v. *State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29, 42 (1983); *Ethylene Oxide Emissions Standards for Sterilization Facilities; Final Decision,* 71 FR 17712, 17715 col. 1 (April 7, 2006) (in residual risk review for EtO, EPA asserting its ''authority to revisit (and revise, if necessary) any rulemaking if there is sufficient evidence that changes within the affected industry or significant improvements to science suggests the public is exposed to significant increases in risk as compared to the risk

[10] 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.

assessment prepared for the rulemaking (*e.g.,* CAA section 301).''). Here, the specific changes to health information related to certain pollutants emitted by these unique categories led us to determine that it is appropriate, in this case, to conduct these second residual risk reviews under section 112(f). In particular, the EPA is concerned about the cancer risks posed from the SOCMI (*i.e.,* HON) source category due to the EPA's 2016 updated IRIS inhalation URE for EtO, which shows EtO to be significantly more toxic than previously known.[11] The EPA's 2006 risk and technology review (RTR) could not have had the benefit of this updated URE at the time it was conducted, but if it had would have necessarily resulted in different conclusions about risk acceptability and the HON's provision of an ample margin of safety to protect public health. Similarly, for chloroprene, when the EPA conducted the first residual risk assessment for the SOCMI and Neoprene Production source categories, there was no inhalation URE for chloroprene and, therefore, no cancer risk was attributed to chloroprene emissions in either of those risk reviews. The EPA's 2006 and 2008 RTRs could not have had the benefit of this new URE at the time they were conducted, but if they had would have necessarily resulted in different conclusions about risk acceptability and P&R I's provision of an ample margin of safety to protect public health. The development of the EPA's IRIS inhalation URE for chloroprene was concluded in 2010, which allows us to assess cancer risks posed by chloroprene for the first time. Thus, we are conducting this analysis in this action. In order to ensure our standards provide an ample margin of safety to protect public health following the new IRIS inhalation UREs for EtO and chloroprene, we are exercising our discretion and conducting risk assessments in this action for HON sources and for affected sources producing neoprene subject to P&R I. Finally, we note that on September 15, 2021, the EPA partially granted a citizen administrative petition requesting that the EPA conduct a second residual risk review under CAA section 112(f)(2) for the HON, stating our intent to conduct a human health risk assessment concurrently with the section 112(d)(6) review.[12] Likewise, on March 4, 2022, the EPA partially granted another citizen administrative petition requesting that the EPA also conduct a second residual risk review under CAA section 112(f) for P&R I, stating that we intend to conduct a human health risk assessment concurrently with the section 112(d)(6) review.[13] This proposed rulemaking is partly undertaken to take action in response to those citizen administrative petitions. In sum, even though we do not have a mandatory duty to conduct repeated residual risk reviews under CAA section 112(f)(2), we have the authority to revisit any rulemaking if there is sufficient evidence that changes within the affected industry or significant new scientific information suggesting the public is exposed to significant increases in risk as compared to the previous risk assessments prepared for earlier rulemakings.

2. NSPS

The EPA's authority for this proposed rule related to NSPS is CAA section 111, which governs the establishment of standards of performance for stationary sources. Section 111(b)(1)(A) of the CAA requires the EPA Administrator to list categories of stationary sources that in the Administrator's judgment cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. The EPA must then issue performance standards for new (and modified or reconstructed) sources in each source category pursuant to CAA section 111(b)(1)(B). These standards are referred to as new source performance standards, or NSPS. The EPA has the authority to define the scope of the source categories, determine the pollutants for which standards should be developed, set the emission level of the standards, and distinguish among classes, types, and sizes within categories in establishing the standards.

CAA section 111(b)(1)(B) requires the EPA to ''at least every 8 years review and, if appropriate, revise'' NSPS. However, the Administrator need not review any such standard if the ''Administrator determines that such review is not appropriate in light of readily available information on the efficacy'' of the standard. When conducting a review of an existing performance standard, the EPA has the discretion and authority to add emission limits for pollutants or emission sources not currently regulated for that source category.

In setting or revising a performance standard, CAA section 111(a)(1) provides that performance standards are to reflect ''the degree of emission limitation achievable through the application of the BSER which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.'' The term ''standard of performance'' in CAA section 111(a)(1) makes clear that the EPA is to determine both the BSER for the regulated sources in the source category and the degree of emission limitation achievable through application of the BSER. The EPA must then, under CAA section 111(b)(1)(B), promulgate standards of performance for new sources that reflect that level of stringency. CAA section 111(h)(1) authorizes the Administrator to promulgate ''a design, equipment, work practice, or operational standard, or combination thereof'' if in his or her judgment, ''it is not feasible to prescribe or enforce a standard of performance.'' CAA section 111(h)(2) provides the circumstances under which prescribing or enforcing a standard of performance is ''not feasible,'' such as, when the pollutant cannot be emitted through a conveyance designed to emit or capture the pollutant, or when there is no practicable measurement methodology for the particular class of sources. CAA section 111(b)(5) precludes the EPA from prescribing a particular technological system that must be used to comply with a standard of performance. Rather, sources can select any measure or combination of measures that will achieve the standard.

Pursuant to the definition of new source in CAA section 111(a)(2), standards of performance apply to facilities that begin construction, reconstruction, or modification after the date of publication of the proposed standards in the **Federal Register**. Under CAA section 111(a)(4), ''modification'' means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted. Changes to an existing facility that do

[11] 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. Available at: *https://cfpub.epa.gov/ncea/iris/iris_documents/documents/toxreviews/1025tr.pdf.* See also, 87 FR 77985 (Dec. 21, 2022), ''Reconsideration of the 2020 National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing Residual Risk and Technology Review,'' Final action; reconsideration of the final rule.

[12] See letter dated September 15, 2021, from Joseph Goffman to Kathleen Riley, Emma Cheuse, and Adam Kron which is available in the docket for this rulemaking.

[13] See letter dated March 4, 2022, from Joseph Goffman to Emma Cheuse, Deena Tumeh, Michelle Mabson, Maryum Jordan, and Dorian Spence which is available in the docket for this rulemaking.

not result in an increase in emissions are not considered modifications. Under the provisions in 40 CFR 60.15, reconstruction means the replacement of components of an existing facility such that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility; and (2) it is technologically and economically feasible to meet the applicable standards. Pursuant to CAA section 111(b)(1)(B), the standards of performance or revisions thereof shall become effective upon promulgation.

In the development of NSPS for the SOCMI source category, the EPA considered emission sources associated with unit processes, storage and handling equipment, fugitive emission sources, and secondary sources. In 1983, the EPA promulgated NSPS for VOC from equipment leaks in SOCMI (40 CFR part 60, subpart VV). In 1990, the EPA promulgated NSPS (40 CFR part 60, subparts III and NNN) for VOC from air oxidation unit processes and distillation operations in the SOCMI (55 FR 26912 and 55 FR 26931). In 1993, the EPA promulgated NSPS (40 CFR part 60, subpart RRR) for VOC from reactor processes in the SOCMI (58 FR 45948). In 2007, based on its review of NSPS subpart VV, the EPA promulgated certain amendments to NSPS subpart VV and new NSPS (40 CFR part 60, subpart VVa) for VOC from certain equipment leaks in the SOCMI (72 FR 64883). This proposed action presents the required CAA 111(b)(1)(B) review of the NSPS for the air oxidation unit processes (subpart III), distillation operations (subpart NNN), reactor processes (subpart RRR), and equipment leaks (subpart VVa).

3. Petition for Reconsideration

In addition to the proposed action under section 111(b)(1)(B) described above, this action includes proposed amendments to the NSPS for VOC from equipment leaks in SOCMI based on its reconsideration of certain aspects of NSPS subparts VV and VVa that were raised in an administrative petition and of which the Agency has granted reconsideration pursuant to section 307(d)(7)(B) of the CAA. In January 2008, the EPA received one petition for reconsideration of the NSPS for VOC from equipment leaks in SOCMI (40 CFR part 60, subparts VV and VVa) and the NSPS for equipment leaks in petroleum refineries (40 CFR part 60, subparts GGG and GGGa) pursuant to CAA section 307(d)(7)(B) from the following petitioners: American Chemistry Council, American Petroleum Institute, and National Petrochemical and Refiners Association (now the American Fuel and Petrochemical Manufacturers). A copy of the petition and subsequent EPA correspondence granting reconsideration is provided in the docket for this rulemaking (see Docket No. EPA–HQ–OAR–2022–0730). The petitioners primarily requested the EPA reconsider four provisions in those rules: (1) The clarification of the definition of process unit in subparts VV, VVa, GGG, and GGGa; (2) the assignment of shared storage vessels to specific process units in subparts VV, VVa, GGG, and GGGa; (3) the monitoring of connectors in subpart VVa; and (4) the definition of capital expenditure in subpart VVa.[14] The rationale for this request is provided in the petition. The petitioners also requested that the EPA stay the effectiveness of these provisions of the rule pending resolution of their petition for reconsideration. On March 4, 2008, the EPA sent a letter to the petitioners informing them that the EPA was granting their request for reconsideration on issues (2) through (4) above. The letter also indicated that the EPA was not taking action on the first issue related to the definition of process unit. Finally, the letter indicated that the EPA was granting a 90-day stay of the provisions of the rules under reconsideration (see CAA section 307(d)(7)(B)), as well as the clarification of the definition of process unit, because of its reliance upon the new provision on the allocation of shared storage vessels. On June 2, 2008, the EPA published three actions in the **Federal Register** relative to extending the 90-day stay. Specifically, the EPA published a direct final rule (73 FR 31372) and a parallel proposal (73 FR 31416) in the **Federal Register** to extend the stay until we take final action on the issues of which EPA granted reconsideration. Under the direct final rule, the stay would take effect 30 days after the close of the comment period on the proposed stay if no adverse comments were received. The third notice published that same day was an interim final rule extending the 90-day stay at the time for an additional 60 days so that the stay would not expire before the direct final rule could take effect (73 FR 31376). The EPA did not receive adverse comments on the proposed stay and, as a result, the stay became effective August 1, 2008.

In the June 2, 2008, actions, the EPA indicated that it would be publishing a **Federal Register** notice in response to the petition; therefore, the purpose of today's notice is to formally respond to the issues raised in the petition with respect to NSPS subparts VV and VVa. This proposed action presents the EPA's proposed revisions to the NSPS for VOC from equipment leaks in SOCMI based on the EPA's reconsideration of issues (2) through (4) in the petition. We are also proposing amendments that address the stay on issue (1) in the petition. See section III.E.4 of this preamble for details about these proposed amendments.

B. What are the source categories and how do the current standards regulate emissions?

The source categories that are the subject of this proposal are the SOCMI source category subject to the HON and 11 Polymers and Resins Production source categories subject to P&R I and P&R II. The NESHAP and NSPS included in this action that regulate emission sources from the SOCMI and Polymers and Resins Production source categories are described below.

1. HON

The sources affected by the current HON include heat exchange systems and maintenance wastewater located at SOCMI facilities that are regulated under NESHAP subpart F; process vents, storage vessels, transfer racks, and wastewater streams located at SOCMI facilities that are regulated under NESHAP subpart G; equipment leaks associated with SOCMI processes regulated under NESHAP subpart H; and equipment leaks from certain non-SOCMI processes at chemical plants regulated under NESHAP subpart I. As previously mentioned, these four NESHAP are more commonly referred together as the HON.

In general, the HON applies to CMPUs that: (1) Produce one of the listed SOCMI chemicals,[15] and (2) either use as a reactant or produce a listed organic HAP in the process. A CMPU means the equipment assembled and connected by pipes or ducts to process raw materials and to manufacture an intended product. A CMPU consists of more than one unit operation. A CMPU includes air oxidation reactors and their associated product separators and recovery devices; reactors and their associated product separators and recovery devices; distillation units and their associated distillate receivers and recovery devices; associated unit

[14] Note that this action does not respond to the reconsideration of NSPS subparts GGG and GGGa, as the EPA is not reviewing those subparts in this action.

[15] See Table 1 to NESHAP subpart F.

operations; associated recovery devices; and any feed, intermediate and product storage vessels, product transfer racks, and connected ducts and piping. A CMPU includes pumps, compressors, agitators, PRDs, sampling connection systems, open-ended valves or lines (OEL), valves, connectors, instrumentation systems, and control devices or systems. A CMPU is identified by its primary product.

a. NESHAP Subpart F

NESHAP subpart F contains provisions to determine which chemical manufacturing processes at a SOCMI facility are subject to the HON. Table 1 of NESHAP subpart F contains a list of SOCMI chemicals, and Table 2 of NESHAP subpart F contains a list of organic HAP regulated by the HON. In general, if a process both: (1) Produces one of the listed SOCMI chemicals and (2) either uses as a reactant or produces a listed organic HAP in the process, then that SOCMI process is subject to the HON. Details on how to determine which emission sources (*i.e.,* heat exchange systems, process vents, storage vessels, transfer racks, wastewater, and equipment leaks) are part of a chemical manufacturing process are also contained in NESHAP subpart F. NESHAP subpart F also contains monitoring requirements for HAP (*i.e.,* HAP listed in Table 4 of NESHAP subpart F) that may leak into cooling water from heat exchange systems. Additionally, NESHAP subpart F requires sources to prepare a description of procedures for managing maintenance wastewater as part of a SSM plan.

b. NESHAP Subpart G

NESHAP subpart G contains the standards for process vents, transfer racks, storage vessels, and wastewater at SOCMI facilities; it also includes emissions averaging provisions. NESHAP subpart G provides an equation representing a site-specific allowable overall emission limit for the combination of all emission sources subject to the HON at a SOCMI facility. Existing sources must demonstrate compliance using one of two approaches: the point-by-point compliance approach or the emissions averaging approach. New sources are not allowed to use emissions averaging, but rather must demonstrate compliance using the point-by-point approach. Under the point-by-point approach, the owner or operator would apply control to each Group 1 emission source. A Group 1 emission source is a point which meets the control applicability criteria, and the owner or operator must reduce emissions to specified levels; whereas a Group 2 emission source is one that does not meet the criteria and no additional emission reduction is required. Under the emissions averaging approach, an owner or operator may elect to control different groups of emission sources to different levels than specified the point-by-point approach, as long as the overall emissions do not exceed the overall allowable emission level. For example, an owner or operator can choose not to control a Group 1 emission source (or to control the emission source with a less effective control technique) if the owner or operator over-controls another emission source. For the point-by-point approach, NESHAP subpart G contains the following standards:

- Group 1 process vents must reduce emissions of organic HAP using a flare meeting 40 CFR 63.11(b); reduce emissions of total organic HAP or TOC by 98 percent by weight or to an exit concentration of 20 ppmv, whichever is less stringent; or achieve and maintain a TRE index value [16] greater than 1.0.[17]
- Group 1 transfer racks must reduce emissions of total organic HAP by 98 percent by weight or to an exit concentration of 20 ppmv, whichever is less stringent; or reduce emissions of organic HAP using a flare meeting 40 CFR 63.11(b), using a vapor balancing system, or by routing emissions to a fuel gas system or to a process.
- Group 1 storage vessels must reduce emissions of organic HAP using a fixed roof tank equipped with an IFR; using an external floating roof (EFR); using an EFR tank converted to a fixed roof tank equipped with an IFR; by routing emissions to a fuel gas system or to a process; or reduce emissions of organic HAP by 95 percent by weight using a closed vent system (*i.e.,* vapor collection system) and control device, or combination of control devices (or reduce emissions of organic HAP by 90 percent by weight using a closed vent system and control device if the control device was installed before December 31, 1992).
- Group 1 process wastewater streams and equipment managing such streams at both new and existing sources must meet control requirements for: (1) Waste management units including wastewater tanks, surface impoundments, containers, individual drain systems, and oil-water separators; (2) treatment processes including the design steam stripper, biological treatment units, or other treatment devices; and (3) closed vent systems and control devices such as flares, catalytic incinerators, etc. Existing sources are not required to meet control requirements if Group 1 process wastewater streams are included in a 1 megagram per year source-wide exemption allowed by NESHAP subpart G.
- In general, Group 2 emission sources are not required to apply any additional emission controls (provided they remain below Group 1 thresholds); however, they are subject to certain monitoring, reporting, and recordkeeping requirements to ensure that they were correctly determined to be Group 2 and that they remain Group 2.

c. NESHAP Subpart H

NESHAP subpart H contains the standard for equipment leaks at SOCMI facilities, including leak detection and repair (LDAR) provisions and other control requirements. Equipment regulated includes pumps, compressors, agitators, PRDs, sampling connection systems, OEL, valves, connectors, surge control vessels, bottoms receivers, and instrumentation systems in organic HAP service. A piece of equipment is in organic HAP service if it contains or contacts a fluid that is at least 5 percent by weight organic HAP. Depending on the type of equipment, the standards require either periodic monitoring for and repair of leaks, the use of specified equipment to minimize leaks, or specified work practices. Monitoring for leaks must be conducted using EPA Method 21 in appendix A–7 to 40 CFR part 60 or other approved equivalent monitoring techniques.

d. NESHAP Subpart I

NESHAP subpart I provides the applicability criteria for certain non-SOCMI processes subject to the negotiated regulation for equipment leaks. Regulated equipment is the same as that for NESHAP subpart H.

2. P&R I

P&R I generally follows and refers to the requirements of the HON, with additional requirements for batch process vents. Generally, P&R I applies to EPPUs and associated equipment. Similar to a CMPU in the HON, an EPPU means a collection of equipment assembled and connected by hard-piping or duct work used to process raw materials and manufacture elastomer

[16] See section III.C.3.a of this preamble for a description of the TRE index value and how the concept is currently used in the HON.

[17] Halogenated vent streams (as defined in NESHAP subpart G) from Group 1 process vents may not be vented to a flare and must reduce the overall emissions of hydrogen halides and halogens by 99 percent (or 95 percent for control devices installed prior to December 31, 1992) or reduce the outlet mass emission rate of total hydrogen halides and halogens to less than 0.45 kg/hr.

product. The EPPU includes unit operations, recovery operations, process vents, storage vessels, and equipment that are covered by equipment leak standards and produce one of the elastomer types listed as an elastomer product, including: butyl rubber, epichlorohydrin elastomer, ethylene propylene rubber, halobutyl rubber, Hypalon™, neoprene, nitrile butadiene latex, nitrile butadiene rubber, polybutadiene rubber/styrene butadiene rubber by solution, polysulfide rubber, styrene butadiene latex, and styrene butadiene rubber by emulsion. An EPPU consists of more than one unit operation. An EPPU includes, as ''equipment,'' pumps, compressors, agitators, PRDs, sampling connection systems, OEL, valves, connectors, surge control vessels, bottoms receivers, instrumentation systems, and control devices or systems.

The emissions sources affected by P&R I include heat exchange systems and maintenance wastewater at P&R I facilities regulated under NESHAP subpart F; storage vessels, transfer racks, and wastewater streams at P&R I facilities regulated under NESHAP subpart G; and equipment leaks at P&R I facilities regulated under NESHAP subpart H. Process vents are also regulated emission sources but, unlike the HON, these emissions sources are subdivided into front and back-end process vents in P&R I. The front-end are unit operations prior to and including the stripping operations. These are further subdivided into continuous front-end process vents regulated under NESHAP subpart G and batch front-end process vents that are regulated according to the requirements within P&R I. Back-end unit operations include filtering, coagulation, blending, concentration, drying, separating, and other finishing operations, as well as latex and crumb storage. The requirements for back-end process vents are not subcategorized into batch or continuous and are also found within P&R I.

3. P&R II

P&R II regulates HAP emissions from two source categories, Epoxy Resins Production (also referred to as basic liquid epoxy resins or BLR) and Non-Nylon Polyamides Production (also referred to as wet strength resins or WSR). P&R II takes a different regulatory and format approach from P&R I but still refers to HON provisions for a portion of the standards. BLR are resins made by reacting epichlorohydrin and bisphenol A to form diglycidyl ether of bisphenol-A. WSR are polyamide/epichlorohydrin condensates which are used to increase the tensile strength of paper products.

The emission sources affected by P&R II are all HAP emission points within a facility related to the production of BLR or WSR. These emission points include process vents, storage tanks, wastewater systems, and equipment leaks. Equipment includes connectors, pumps, compressors, agitators, PRDs, sampling connection systems, OEL, and instrumentation system in organic HAP service. Equipment leaks are regulated under the HON (*i.e.,* NESHAP subpart H).

Process vents, storage tanks, and wastewater systems combined are regulated according to a production-based emission rate (*e.g.,* pounds HAP per million pounds BLR or WSR produced). For existing sources, the rate shall not exceed 130 pounds per 1 million pounds of BLR produced and 10 pounds per 1 million pounds of WSR produced. For new sources, BLR requires all uncontrolled emissions to achieve 98 percent reduction or limits the total emissions to 5,000 pounds of HAP per year. New WSR sources are limited to 7 pounds of HAP per 1 million pounds of WSR produced.

4. NSPS Subpart VVa

NSPS subpart VVa contains VOC standards for leaks from equipment within a process unit for which construction, reconstruction, or modification commenced after November 7, 2006. Under NSPS subpart VVa, equipment means each pump, compressor, PRD, sampling connection system, OEL, valve, and flange or other connector in VOC service and any devices or systems required by the NSPS. Process units consist of components assembled to produce, as intermediate or final products, one or more of the chemicals listed in 40 CFR 60.489. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product. The standards in NSPS subpart VVa include LDAR provisions and other control requirements. A piece of equipment is in VOC service if it contains or contacts a fluid that is at least 10 percent by weight VOC. Depending on the type of equipment, the standards require either periodic monitoring for and repair of leaks, the use of specified equipment to minimize leaks, or specified work practices. Monitoring for leaks must be conducted using EPA Method 21 in appendix A–7 to 40 CFR part 60 or other approved equivalent monitoring techniques.

5. NSPS Subpart III

NSPS subpart III regulates VOC emissions from SOCMI air oxidation reactors for which construction, reconstruction, or modification commenced after October 21, 1983. For the purpose of NSPS subpart III, air oxidation reactors are devices or process vessels in which one or more organic reactants are combined with air, or a combination of air and oxygen, to produce one or more organic compounds. The affected facility is designated as a single air oxidation reactor with its own individual recovery system (if any) or the combination of two or more air oxidation reactors and the common recovery system they share that produces one or more of the chemicals listed in 40 CFR 60.617 as a product, co-product, by-product, or intermediate. Owners and operators of an affected facility must reduce emissions of TOC (minus methane and ethane) by 98 percent by weight or to a concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen, whichever is less stringent; combust the emissions in a flare meeting 40 CFR 60.18(b); or maintain a TRE index value [18] greater than 1.0 without use of VOC emission control devices.

6. NSPS Subpart NNN

NSPS subpart NNN regulates VOC emissions from SOCMI distillation operations for which construction, reconstruction, or modification commenced after December 30, 1983. For the purpose of NSPS subpart NNN, distillation operations are operations separating one or more feed stream(s) into two or more exit stream(s), each exit stream having component concentrations different from those in the feed stream(s); and the separation is achieved by the redistribution of the components between the liquid and vapor-phase as they approach equilibrium within a distillation unit. The affected facility is designated as a single distillation column with its own individual recovery system (if any) or the combination of two or more distillation columns and the common recovery system they share that is part of a process unit that produces any of the chemicals listed in 40 CFR 60.667 as a product, co-product, by-product, or intermediate. Owners and operators of an affected facility must reduce emissions of TOC (minus methane and ethane) by 98 percent by weight or to a concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen,

[18] See section III.C.3.b of this preamble for a description of the TRE index value and how the concept is currently used in NSPS Subpart III.

whichever is less stringent; combust the emissions in a flare meeting 40 CFR 60.18(b); or maintain a TRE index value [19] greater than 1.0 without use of VOC emission control devices.

7. NSPS Subpart RRR

NSPS subpart RRR regulates VOC emissions from SOCMI reactor processes for which construction, reconstruction, or modification commenced after June 29, 1990. For the purpose of NSPS subpart RRR, reactor processes are unit operations in which one or more chemicals, or reactants other than air, are combined or decomposed in such a way that their molecular structures are altered and one or more new organic compounds are formed. The affected facility is designated as a single reactor process with its own individual recovery system (if any) or the combination of two or more reactor processes and the common recovery system they share that is part of a process unit that produces any of the chemicals listed in 40 CFR 60.707 as a product, co-product, by-product, or intermediate. Owners and operators of an affected facility must reduce emissions of TOC (minus methane and ethane) by 98 percent by weight or to a concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen, whichever is less stringent; combust the emissions in a flare meeting 40 CFR 60.18(b); or maintain a TRE index value [20] greater than 1.0 without use of VOC emission control devices.

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

The EPA used several data sources to determine the facilities that are subject to the NESHAP and NSPS discussed in section II.B of this preamble. We identified facilities in the 2017 National Emissions Inventory (NEI) and the Toxics Release Inventory system having a primary facility NAICS code beginning with 325, Chemical Manufacturing. We also used information from the 2006 HON RTR, the 2008 and 2011 P&R RTRs, other internal chemical sector facility lists from the EPA's recent petrochemical sector RTR rulemakings (*e.g.,* Miscellaneous Organic Chemical Manufacturing NESHAP (MON), Organic Liquids Distribution (Non-Gasoline) NESHAP (OLD), Ethylene Production MACT standards (EMACT), and Petroleum Refinery MACT 1 standards (the Petroleum Refinery Sector rule)), and the Office of Enforcement and Compliance Assurance's (OECA) Enforcement and Compliance History Online (ECHO) tool (*https://echo.epa.gov*). To inform our reviews of our emission standards, we reviewed the EPA's Reasonably Available Control Technology (RACT)/Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Clearinghouse and regulatory development efforts for similar sources published after the rules that are subject to this proposal were developed. The EPA also reviewed air permits to determine facilities subject to the HON, and P&R I and P&R II. We also met with industry representatives from the American Chemistry Council, American Fuel & Petrochemical Manufacturers, and Vinyl Institute to collect data and discuss industry practices.

In June 2021 and January 2022, the EPA issued requests, pursuant to CAA section 114, to collect information from HON facilities (one being also subject to P&R I and several being also subject to NSPS subparts III, NNN, and/or RRR) owned and operated by nine entities (*i.e.,* corporations). Many of the entities chosen have facilities that produce, use, and emit EtO or chloroprene, which are pollutants with considerable concern for cancer risk for the SOCMI and Neoprene Production source categories. This effort focused on gathering comprehensive information about process equipment, control technologies, point and fugitive emissions, and other aspects of facility operations. Companies submitted responses (and follow-up responses) to the EPA between March 2022 and December 2022 (for the January 2022 request). Additionally, as part of the January 2022 CAA section 114 requests, the EPA requested stack testing for certain emission sources (*e.g.,* pollutants for vent streams associated with each EtO production line). Also, the EPA required, as part of the January 2022 CAA section 114 request, that facilities conduct fugitive emission testing (*i.e.,* fenceline monitoring) for benzene, 1,3-butadiene, chloroprene, EtO, ethylene dichloride, or vinyl chloride. The results of the January 2022 requests were submitted to the EPA during the summer and fall of 2022. For the one facility that received a CAA section 114 request in June 2021, the EPA has received responses (and follow-up responses) from them in the fall and winter of 2021, and also began receiving fenceline monitoring data for chloroprene and 1,3-butadiene in January 2022 (and is continuing to receive this data).[21] The EPA has used the collected information to fill data gaps, establish the baseline emissions and control levels for purposes of the regulatory reviews, identify the most effective control measures, and estimate the public health and environmental and cost impacts associated with the regulatory options considered and reflected in this proposed action. The information not claimed as CBI by respondents is available in the document titled *Data Received From Information Collection Request for Chemical Manufacturers,* in the docket for this action, Docket ID No. EPA–HQ–OAR–2022–0730. A list of facilities located in the United States that are part of the SOCMI source category with processes subject to the HON, P&R I, P&R II, and/or the SOCMI NSPS (40 CFR part 60, subparts VVa, III, NNN, and RRR), is available in the document titled *Lists of Facilities Subject to the HON, Group I and Group II Polymers and Resins NESHAPs, and NSPS subparts VV, VVa, III, NNN, and RRR,* in the docket for this action, Docket ID No. EPA–HQ–OAR–2022–0730.

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

As mentioned above, today's action includes proposed amendments to the current flare requirements in the SOCMI NSPS for air oxidation reactors, distillation columns, and reactor processes, and NESHAP for the HON and P&R I. In proposing these amendments, we relied on certain technical reports and memoranda that the EPA developed for flares used as APCDs in the Petroleum Refinery Sector residual risk and technology review and NSPS rulemaking (80 FR 75178, December 1, 2015). The Petroleum Refinery sector docket is at Docket ID No. EPA–HQ–OAR–2010–0682. For completeness of the rulemaking record for today's action and for ease of reference in finding these items in the publicly available petroleum refinery sector rulemaking docket, we are including the most relevant flare related technical support documents in the docket for this proposed action (Docket ID No. EPA–HQ–OAR–2022–0730) and including a list of all documents used to inform the 2015 flare provisions in the Petroleum Refinery Sector residual risk and technology review and NSPS rulemaking in the document titled *Control Option Impacts for Flares Located in the SOCMI Source Category*

[19] See section III.C.3.b of this preamble for a description of the TRE index value and how the concept is currently used in NSPS Subpart NNN.

[20] See section III.C.3.b of this preamble for a description of the TRE index value and how the concept is currently used in NSPS Subpart RRR.

[21] As fenceline monitoring data continues to be gathered for this facility, it is being posted on the following web page: *https://www.epa.gov/la/denka-air-monitoring-data-summaries.*

that Control Emissions from Processes Subject to HON and for Flares that Control Emissions from Processes Subject to Group I and Group II Polymers and Resins NESHAPs, which is available in the docket for this rulemaking.

We are also relying on data gathered to support the RTRs for the EMACT standards, MON, and OLD NESHAP, as well as memoranda documenting the technology reviews for those processes. Many of the emission sources for ethylene production facilities, MON facilities, and OLD facilities are similar to HON, P&R I, and P&R II facilities, and several of the control options analyzed for the HON, and P&R I and P&R II, were also analyzed for the RTRs for the EMACT standards, MON, and OLD NESHAP. The memoranda and background technical information can be found in the Ethylene Production RTR rulemaking docket, Docket ID No. EPA–HQ–OAR–2017–0357; the MON RTR rulemaking docket, Docket ID No. EPA–HQ–OAR–2018–0746; and the OLD RTR rulemaking docket, Docket ID No. EPA–HQ–OAR–2018–0074.

Additional information related to the promulgation and subsequent amendments of the NSPS subparts VVa, III, NNN, and RRR, the HON, and P&R I and P&R II is available in Docket ID Nos. A–80–25, A–81–22, A–83–29, A–90–19, EPA–HQ–OAR–2002–0026, EPA–HQ–OAR–2002–0281, EPA–HQ–OAR–2002–0284, EPA–HQ–OAR–2002–0475, EPA–HQ–OAR–2006–0699, EPA–HQ–OAR–2007–0211, and EPA–HQ–OAR–2010–0600.

Lastly, the EPA acknowledges that there is also some unique ambient community monitoring data available for chloroprene concentrations near the Neoprene Production facility that was developed since 2016 separately from this rulemaking process.[22] This unique ambient community monitoring data includes data gathered by the EPA and the Louisiana Department of Environmental Quality and consists of short-term, 24-hour cannister sampling data gathered over various days throughout a four-year period both before and after the Neoprene Production facility installed controls to reduce emissions of chloroprene. The data generally indicate that concentrations in the community have decreased over time, but the current levels corroborate the need for further reductions.

Consistent with our usual practice in developing proposed rules under CAA section 112(f)(2), the EPA has conducted its risk assessment based on modeling of current allowable and/or actual emissions and projected future emissions. The EPA has not relied on the unique ambient community monitoring data for the Neoprene Production facility: (1) In assessing the remaining risk from chloroprene emissions from the SOCMI or Neoprene Production source categories after compliance with existing emission standards or (2) in projecting future risks that would remain after compliance with the proposed standards here. Consequently, the unique ambient community monitoring data is not part of our rulemaking record.

The EPA relies on modeling, which is not dependent on the availability (or lack thereof) of monitoring data, to perform our risk assessments when developing residual risk analyses under CAA section 112(f)(2). Modeling provides the EPA with the ability and flexibility to estimate risks for all populations living near the sources across an impacted industrial source category, and to estimate various risk metrics, such as the MIR, cancer incidence, and number of people above specific risk thresholds. Modeling also allows the EPA to assess the risks that will remain after the implementation of proposed controls. With these caveats in mind, the EPA seeks comment on the relevance (if any) of the unique ambient community monitoring data to the EPA's rulemaking.

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

As discussed in section II.A.1 of this preamble and in the 1989 Benzene NESHAP, in evaluating and developing standards under CAA section 112(f)(2), our longstanding and consistent policy is that 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 1989 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). 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 1989 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 emissions of HAP that are carcinogens 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.[23] 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 explanation in EPA's response to comments on our policy under the 1989 Benzene NESHAP:

> The 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''.

(54 FR 38057). Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risk. The 1989 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

[22] *https://www.epa.gov/la/denka-air-monitoring-data-summaries.*

[23] 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.

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 1989 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.'' [24]

In response to the SAB recommendations, the EPA incorporates cumulative risk analyses into its RTR risk assessments. 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 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 note there are 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.

F. 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 III.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 documents which provide more information on the risk assessment inputs and models: *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 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; [25] 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?

As previously discussed, we updated the risk assessment in this action for the SOCMI and Neoprene Production source categories because these source categories have sources that emit EtO and/or chloroprene. The SOCMI and Neoprene Production source category facility lists were developed as described in section II.C of this preamble and consist of 207 HON facilities and one neoprene production facility.[26] For the 207 HON facilities, only 195 had reported HAP emissions in the 2017 NEI, and we note that two facilities included in the 207 are new/under construction and were not operating in 2017. The emissions modeling input files were developed using the EPA's 2017 NEI. However, in a few instances where facility-specific

[24] Recommendations of the SAB Risk and Technology Review Methods Panel are provided in their report, which is available at: *https://www.epa.gov/sites/default/files/2021-02/documents/epa-sab-10-007-unsigned.pdf.*

[25] 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.*

[26] The one neoprene production facility also has collocated HON emissions sources from the production of chloroprene.

data were not available or not reflective of current controls in the 2017 NEI, we attempted to obtain data from a more recent dataset (*e.g.,* review of emissions inventory data from our CAA section 114 request, more recent inventories submitted to states, or 2018 NEI). Of note, for the one neoprene production facility (which is also part of the SOCMI source category), we used the 2019 emissions inventory that was provided to the EPA from our CAA section 114 request. 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. For further details on the assumptions and methodologies used to estimate actual emissions, see Appendix 1 of the document titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking.

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 19992, 19998–19999, April 15, 2005) and in the proposed and final HON RTR (71 FR 34421, 34428, June 14, 2006, and 71 FR 76603, 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 1989 Benzene NESHAP approach. (54 FR 38044.)

For this analysis, we have determined that the actual emissions data are reasonable estimates of the MACT-allowable emissions levels for the SOCMI source category, as we are not generally aware of any situations in which a facility is conducting additional work practices or operating a control device such that it achieves a far greater emission reduction than required by the NESHAP. For the Neoprene Production source category, we do know that some emission sources (*e.g.,* process vents) are being controlled beyond the current level of the NESHAP standards. However, because there is only one facility in the source category and because we are proposing to require these same control requirements in this action, we consider these to be part of the baseline actual emissions. We are also not aware of the neoprene production facility over-controlling fugitive emission sources, which tend to be the predominant risk drivers for this source category. We note that because of the difficulty and uncertainty around comparing fugitive emissions reported in emission inventories (*i.e.,* assumptions and engineering calculations are generally used for fugitive emissions in emissions inventories since it is not practicable to measure them due to technological and economic limitations) to the MACT standards for both the SOCMI and Neoprene Production source categories and whether facilities are better controlling these emissions sources since they tend to drive risks, a separate assessment of risk for allowable emissions appears unnecessary given the finding that risks are unacceptable based on actual emissions (see section III.B of this preamble). 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 SOCMI Source Category in Support of the 2023 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).[27] The HEM performs three primary risk assessment activities: (1) Conducting 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) (~31 miles) 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 EPA's American Meteorological Society/EPA Regulatory Model dispersion modeling system (AERMOD), used by the HEM, is one of the EPA's preferred models for assessing air pollutant concentrations from industrial facilities.[28] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes hourly surface and upper air observations for years ranging from 2016–2019 from over 800 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block [29] 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 (~31 miles) of the 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) 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

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

[28] 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).

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

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 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 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 [30] 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-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) Minimal Risk Level (*https://www.atsdr.cdc.gov/mrls/*); (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 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. 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,[31] we revised 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 the documents titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment,* which are available in the docket for this rulemaking. This revised approach has been used in this proposed rule and in all other 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,[32] 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

[30] 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.*

[31] 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*).

[32] 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 the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule, Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment.* All three of these documents are available in the docket for this rulemaking.

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 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.'' [33] 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.[34] 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 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, by the American Industrial Hygiene Association (AIHA), for emergency planning and are intended to be health-based guideline concentrations for single exposures to chemicals. The ERPG–1 is the maximum airborne concentration, established by AIHA, 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. Similarly, the ERPG–2 is the maximum airborne concentration, established by AIHA, 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.

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 SOCMI and Neoprene Production source categories, we did not use a default acute emissions multiplier of 10, but rather, we used process level-specific acute emissions multipliers, generally ranging from a factor of 2 to 10 as was done in past chemical and petrochemical residual risk reviews such as for the 2015 the Petroleum Refinery Sector rule, 2020 MON RTR, 2020 EMACT RTR, and 2020 OLD NESHAP RTR, where similar emission sources and standards exist. These refinements are discussed more fully in Appendix 1 of the document titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 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 these source categories, the data refinements employed consisted of reviewing satellite imagery of the locations of the maximum acute HQ values to determine if the maximum was off facility property. For any maximum value that was determined to be on facility property, the next highest value that was off facility property was used. These refinements are discussed more fully in the documents titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which are available in the docket for this rulemaking.

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 categories 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 Neoprene Production source category, we did not identify emissions of any PB–HAP in the reported emissions inventory. Because we did not identify reported PB–HAP emissions, we could not undertake the three-tier human health risk screening assessment of PB–HAP that we discuss below and which was conducted for the SOCMI source category. However, for dioxins we used the results of the SOCMI source category human health screening assessment at facilities with higher dioxin emission rates than the

[33] 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.*

[34] 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*).

ones proposed for the Neoprene Production source category to qualitatively assess the potential for human health risks.

For the SOCMI source category, we identified PB–HAP emissions of arsenic compounds, cadmium compounds, dioxins, polycyclic organic matter (POM), and mercury, 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.''

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 screening value 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 (~31 miles) 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 the USGS lakes database.

In the Tier 2 farmer scenario, we maintain an assumption that the farm is located within 0.5 km (~0.3 miles) 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 [35]) and locally grown or raised foods (90th percentile consumption of locally grown or raised foods for the farmer and gardener scenarios [36]). If PB–HAP emission rates do not result in a Tier 2 screening value 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.

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.[37] 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 documents titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which are available in the docket for this rulemaking.

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

In addition to assessing baseline inhalation risks and screening for potential multipathway risks, we also estimate risks considering the potential

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

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

[37] 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 1989 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.

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 hydrofluoric acid (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 documents titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which are available in the docket for this rulemaking.

b. Environmental Risk Screening Methodology

For the environmental risk screening assessment, the EPA first determined whether any facilities in the SOCMI and Neoprene Production source categories emitted any of the environmental HAP. For the Neoprene Production source category, we did not identify reported emissions of any of the six environmental HAP included in the screen. Because we did not identify reported environmental HAP emissions from the neoprene source category, we could not proceed to the second step of the evaluation as discussed below for the HON. However, for dioxins we used the results of the SOCMI source category environmental risk screening assessment at facilities with higher dioxin emission rates than the ones proposed for the Neoprene Production source category to qualitative assess the potential for adverse environmental effects.

For the SOCMI source category, we identified reported emissions of arsenic compounds, cadmium compounds, dioxins, POM, and mercury.[38] Because one or more of the environmental HAP evaluated are emitted by at least one facility in the SOCMI 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

[38] We note that in many instances, we did not have sufficient information to parse out emissions from HON processes from facility-wide emissions inventories, thus we took a conservative approach and modeled facility-wide emissions as if they were all from the SOCMI source category.

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 square km; the percentage of the modeled area around each facility that exceeds the ecological benchmark for each acid gas; and the area-weighted average screening value 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 documents titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which are available in the docket for this rulemaking.

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 these source categories, we conducted the facility-wide assessment using a dataset compiled from the 2017 NEI and other emissions information discussed in section II.C of this preamble. Once a quality assured source category dataset was available, it was placed back with the remaining records from the emissions inventory for that facility (which in most instances was 2017 NEI data). 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 (~31 miles) 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 documents titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* available through the docket for this rulemaking, provide 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 conduct community-based risk assessments?

In addition to the source category and facility-wide risk assessments, we also assessed the combined inhalation cancer risk from all local stationary sources of HAP for which we have emissions data. Specifically, we combined the modeled impacts from the facility-wide assessment (which includes category and non-category sources) with other nearby stationary point source model results. The facility-wide emissions used in this assessment are discussed in section II.C of this preamble. For the other nearby point sources, we used AERMOD model results with emissions based primarily on the 2018 NEI. After combining these model results, we assessed cancer risks due to the inhalation of all HAP emitted by point sources for the populations residing within 10 km (~6.2 miles) of HON facilities. In the community-based risk assessment, the modeled source category and facility-wide cancer risks were compared to the cancer risks from other nearby point sources to determine the portion of the risks that could be attributed to the source category addressed in this proposal. The document titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking, provides the methodology and results of the community-based risks analyses.

9. 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 datasets, 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 documents titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review*

Proposed Rule and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which are available in the docket for this rulemaking. If a multipathway site-specific assessment was performed for these source categories, 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 Datasets

Although the development of the RTR emissions datasets 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.[39] 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.[40] Chronic noncancer RfC and reference dose 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 relies upon an uncertainty factor (UF) approach,[41] 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

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

[40] 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.

[41] 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.

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.

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 these source categories 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.,* groups of compounds that we do not know the exact composition of like 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 emissions 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. 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 actual 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.[42]

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 RTRs.

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 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,

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

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.

G. How does the EPA perform the NESHAP technology review and NSPS review?

1. NESHAP Technology Review

Our technology review primarily focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the previous HON, P&R I, and P&R II technology reviews 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 CAA section 112 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 the HON, P&R I, and P&R II, we review a variety of data sources in our investigation of potential practices, processes, or controls to consider. We also review the NESHAP and the available data to determine if there are any unregulated emissions of HAP within the source categories, and evaluate these data for use in developing new emission standards. When reviewing MACT standards, we also address regulatory gaps, such as missing standards for listed air toxics known to be emitted from the source category. 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.

2. NSPS Review

As noted in the section II.A.2 of this preamble, CAA section 111 requires the EPA, at least every 8 years to review and, if appropriate revise the standards of performance applicable to new, modified, and reconstructed sources. If the EPA determines that it is appropriate to review the standards of performance, the revised standards must reflect the degree of emission limitation achievable through the application of the BSER considering the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements. CAA section 111(a)(1).

In reviewing an NSPS to determine whether it is ''appropriate'' to revise the standards of performance, the EPA evaluates the statutory factors, which may include consideration of the following information:

- Expected growth for the source category, including how many new facilities, reconstructions, and modifications may trigger NSPS in the future.
- Pollution control measures, including advances in control technologies, process operations, design or efficiency improvements, or other systems of emission reduction, that are ''adequately demonstrated'' in the regulated industry.
- Available information from the implementation and enforcement of current requirements indicating that emission limitations and percent reductions beyond those required by the current standards are achieved in practice.
- Costs (including capital and annual costs) associated with implementation of the available pollution control measures.
- The amount of emission reductions achievable through application of such pollution control measures.
- Any non-air quality health and environmental impact and energy requirements associated with those control measures.

In evaluating whether the cost of a particular system of emission reduction is reasonable, the EPA considers various costs associated with the particular air pollution control measure or a level of control, including capital costs and operating costs, and the emission reductions that the control measure or particular level of control can achieve. The Agency considers these costs in the context of the industry's overall capital expenditures and revenues. The Agency also considers cost-effectiveness analysis as a useful metric and a means of evaluating whether a given control achieves emission reduction at a reasonable cost. A cost-effectiveness analysis allows comparisons of relative costs and outcomes (effects) of two or more options. In general, cost-effectiveness is a measure of the

outcomes produced by resources spent. In the context of air pollution control options, cost effectiveness typically refers to the annualized cost of implementing an air pollution control option divided by the amount of pollutant reductions realized annually.

After the EPA evaluates the statutory factors, the EPA compares the various systems of emission reductions and determines which system is ''best,'' and therefore represents the BSER. The EPA then establishes a standard of performance that reflects the degree of emission limitation achievable through the implementation of the BSER. In doing this analysis, the EPA can determine whether subcategorization is appropriate based on classes, types, and sizes of sources, and may identify a different BSER and establish different performance standards for each subcategory. The result of the analysis and BSER determination leads to standards of performance that apply to facilities that begin construction, reconstruction, or modification after the date of publication of the proposed standards in the **Federal Register**. Because the NSPS reflect the BSER under conditions of proper operation and maintenance, in doing its review, the EPA also evaluates and determines the proper testing, monitoring, recordkeeping and reporting requirements needed to ensure compliance with the emission standards.

See section II.C of this preamble for information on the specific data sources that were reviewed as part of this action.

III. Proposed Rule Summary and Rationale

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

As previously discussed, we conducted risk assessments for the SOCMI and Neoprene Production (within P&R I) source categories. We previously identified EtO as a cancer risk driver from facilities with HON-subject processes in the first risk assessment we conducted in 2006. However, the EPA's IRIS inhalation URE for EtO was revised in 2016,[43] based on new data, showing EtO to be more carcinogenic than previously understood (*i.e.,* resulting in a URE 60 times greater than the previous URE over a 70-year lifetime). Additionally, the EPA's IRIS inhalation URE for chloroprene was finalized in 2010 (there was no previous URE).[44] Chloroprene is emitted from some HON-subject processes (*e.g.,* chloroprene production, other chlorinated SOCMI chemical production processes), but is mostly emitted from neoprene production processes subject to P&R I. We briefly present results of the risk assessments below and in more detail in the documents titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which are available in the docket for this rulemaking.

1. Chronic Inhalation Risk Assessment Results

a. SOCMI Source Category

The results of the chronic baseline inhalation cancer risk assessment, which are estimated using modeling and is the case for all risk results presented here and in subsequent sections, 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 EtO emissions from PRDs (74 percent) and equipment leaks (20 percent). The total estimated cancer incidence based on actual and allowable emission levels is 2 excess cancer cases per year. EtO emissions contribute 89 percent of the total cancer incidence. Within 50 km (~31 miles) of HON-subject facilities, the population exposed to cancer risk greater than 100-in-1 million for HON actual and allowable emissions is approximately 87,000 people, and the population exposed to cancer risk greater than or equal to 1-in-1 million is approximately 7.2 million people. Of the 195 facilities that were assessed for risk, 8 facilities have an estimated maximum cancer risk greater than 100-in-1 million. In addition, the maximum modeled chronic noncancer TOSHI for the source category based on actual and allowable emissions is estimated to be 2 (for respiratory effects) at two different facilities (from maleic anhydride emissions at one facility and chlorine emissions at another facility). Approximately 83 people are estimated to be exposed to a TOSHI greater than 1. See Table 1 of this preamble for a summary of the HON inhalation risk assessment results.

TABLE 1—SOCMI SOURCE CATEGORY INHALATION RISK ASSESSMENT RESULTS BASED ON ACTUAL AND ALLOWABLE EMISSIONS [1]

Risk assessment	Number of facilities [2]	Maximum individual cancer risk (-in-1 million) [3]	Estimated population at increased risk of cancer		Estimated annual cancer incidence (cases per year)	Maximum chronic noncancer TOSHI	Refined maximum screening acute noncancer HQ
			>100-in-1 million	≥1-in-1 million			
SOCMI Source Category.	195	2,000	87,000 (50 km) ...	7.2 million (50 km).	2	2 (maleic anhydride) 2 (chlorine)	HQ_{REL} = 3 (chlorine). HQ_{REL} = 3 (acrolein).
Facility-wide [4]	195	2,000	95,000 (50 km) ...	8.9 million (50 km).	2	4 (chlorine, acrylic acid, and acrylonitrile).	

[1] Actual emissions equal allowable emissions; therefore, actual risks equal allowable risks.
[2] There are 207 HON facilities; however, only 195 of these facilities are included in the risk assessment based on available data, which corresponds to 222 Emission Information System (EIS) facility IDs.
[3] Maximum individual excess lifetime cancer risk due to HAP emissions.
[4] See ''Facility-Wide Risk Results'' in section III.A.5 of this preamble for more details on this risk assessment.

[43] 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. Available at: *https://cfpub.epa.gov/ncea/iris/iris_documents/documents/toxreviews/1025tr.pdf.*

[44] U.S. EPA. *Toxicological Review of Chloroprene (CASRN 126–99–8) In Support of Summary Information on the Integrated Risk Information System (IRIS).* September 2010. EPA/635/R–09/010F. Available at: *https://iris.epa.gov/static/pdfs/1021tr.pdf.*

b. Neoprene Production Source Category

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 Neoprene Production source category within P&R I is 500-in-1 million, driven by chloroprene emissions from maintenance vents (67 percent), storage vessels (11 percent), wastewater (8 percent), and equipment leaks (4 percent).[45] The total estimated cancer incidence based on actual and allowable emission levels is 0.05 excess cancer cases per year, or 1 cancer case every 20 years. Within 50 km (~31 miles) of the one facility in this source category, the population exposed to cancer risks greater than 100-in-1 million for actual and allowable emissions is approximately 2,100 people, and the population exposed to cancer risks greater than or equal to 1-in-1 million is approximately 690,000 people. In addition, the maximum modeled chronic noncancer TOSHI for the source category based on actual and allowable emissions is estimated to be 0.05 (for respiratory effects) from chloroprene emissions. See Table 2 of this preamble for a summary of the neoprene production inhalation risk assessment results.

TABLE 2—NEOPRENE PRODUCTION SOURCE CATEGORY INHALATION RISK ASSESSMENT RESULTS BASED ON ACTUAL AND ALLOWABLE EMISSIONS [1]

Risk assessment	Number of facilities [2]	Maximum individual cancer risk (-in-1 million) [3]	Estimated population at increased risk of cancer		Estimated annual cancer incidence (cases per year)	Maximum chronic noncancer TOSHI	Maximum screening acute noncancer HQ
			>100-in-1 million	≥1-in-1 million			
Neoprene Production Source Category.	1	500	2,100 (50 km)	690,000 (50 km)	0.05	0.05 (chloroprene) ..	HQ_{REL} = 0.3 (chloroform).
Facility-wide [4]	1	600	2,300 (50 km)	890,000 (50 km)	0.06	0.3 (chlorine).	

[1] Actual emissions equal allowable emissions; therefore, actual risks equal allowable risks.
[2] Number of facilities evaluated in the risk analysis.
[3] Maximum individual excess lifetime cancer risk due to HAP emissions.
[4] See ''Facility-Wide Risk Results'' in section III.A.5 of this preamble for more details on this risk assessment.

2. Screening Level Acute Risk Assessment Results

a. SOCMI Source Category

As presented in Table 1 of this preamble, the estimated worst-case off-site acute exposures to emissions from the SOCMI source category result in a maximum modeled acute noncancer HQ of 3 based on the RELs for chlorine and acrolein. HON process emissions from two other facilities result in acute noncancer HQs of 2 based on the RELs for formaldehyde and chloroform. Detailed information about the assessment, including evaluation of the screening-level acute risk assessment results, is provided in the main body and Appendix 10 of the document titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking.

b. Neoprene Production Source Category

As presented in Table 2 of this preamble, the estimated worst-case acute exposures to emissions from the Neoprene Production source category result in a maximum modeled acute noncancer HQ of 0.3 based on the REL for chloroform. Detailed information about the assessment is provided in the document titled *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking.

3. Multipathway Risk Screening Results

a. SOCMI Source Category

For the SOCMI source category, 71 facilities emitted at least 1 PB–HAP, including arsenic, cadmium, dioxins, mercury, and POMs.[46] Emissions of these PB–HAP from each facility were compared to the respective pollutant-specific Tier 1 screening emission thresholds. The Tier 1 screening analysis indicated 9 facilities exceeded the Tier 1 emission threshold for arsenic, 3 facilities for cadmium, 9 facilities for dioxins, 9 facilities for mercury, and 20 facilities for POM.

For facilities that exceeded the Tier 1 multipathway screening threshold emission rate for one or more PB–HAP, we used additional facility site-specific information to perform a Tier 2 multipathway risk screening assessment. The Tier 2 assessment resulted in a maximum Tier 2 noncancer screening value of 60 from methyl mercury and 2 for cadmium based on the fisher scenario and a cancer screening value of 100 from POM for the gardener scenario. The Tier 2 assessment indicated the maximum arsenic and dioxin cancer screening values were 30 and 2, respectively, for the gardener scenario, and therefore no further screening was performed.

For mercury and cadmium, a Tier 3 screening assessment was conducted for the fisher scenario while a Tier 3 screening assessment was conducted for POM for the gardener scenario. In the Tier 3 screening for the fisher scenario, lakes near the facilities were reviewed on aerial photographs to ensure they were accessible for fishing. Any lakes not accessible were removed from the assessment. After conducting the Tier 3 assessment, the screening values for mercury and cadmium remained at 60 and 2, respectively.

The Tier 3 gardener scenario was refined by identifying the location of the residence most impacted by POM emissions from the facility as opposed to the worst-case near-field location used in the Tier 2 assessment. Based on these Tier 3 refinements to the gardener scenario, the maximum Tier 3 cancer screening value for POM was 20.

An exceedance of a screening threshold emission rate in any of the tiers cannot be equated with a risk value or an HQ (or HI). Rather, it represents

[45] We note that chloroprene (and all other HAP) emissions from HON processes co-located at the neoprene production facility result in an MIR of 90-in-1 million.

[46] Note that while the multipathway risk screening results includes metals (*e.g.,* arsenic, cadmium, mercury, arsenic) and POMs, the EPA in most instances used a conservative approach and modeled whole facility emissions inventories for the SOCMI source category. This means that emissions from other source categories were included for this analysis, and we have no information suggesting that metals or POMs are emitted from HON processes. See Appendix 1 of the document titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking for more details about development of the risk modeling file.

a high-end estimate of what the risk or hazard may be. For example, a screening value of 2 for a non-carcinogen can be interpreted to mean that the Agency is confident that the HQ would be lower than 2. Similarly, a Tier 2 cancer screening value of 7 means that we are confident that the cancer risk is lower than 7-in-1 million. Our confidence comes from the conservative, or health-protective, assumptions encompassed in the screening tiers: the Agency chooses inputs from the upper end of the range of possible values for the influential parameters used in the screening tiers, and the Agency assumes that the exposed individual exhibits ingestion behavior that would lead to a high total exposure.

The EPA determined that it is not necessary to go beyond the Tier 3 lake analysis or conduct a site-specific assessment for cadmium, mercury, or POM. The EPA compared the Tier 2 screening results to site-specific risk estimates for five previously assessed source categories. These are the five source categories, assessed over the past 4 years, which had characteristics that make them most useful for interpreting the HON screening results. For these source categories, the EPA assessed fisher and/or gardener risks for arsenic, cadmium, and/or mercury by conducting site-specific assessments. The EPA used AERMOD for modeling air dispersion and Tier 2 screens that used multi-facility aggregation of chemical loading to lakes where appropriate. These assessments indicated that cancer and noncancer site-specific risk values were at least 50 times lower than the respective Tier 2 screening values for the assessed facilities, with the exception of noncancer risks for cadmium for the gardener scenario, where the reduction was at least 10 times (refer to EPA Docket ID: EPA–HQ–OAR–2017–0015 and EPA–HQ–OAR–2019–0373 for a copy of these reports).[47]

Based on our review of these analyses, if the Agency was to perform a site-specific assessment for the SOCMI Source Category, the Agency would expect similar magnitudes of decreases from the Tier 2 SVs. As such, given the conservative nature of the screens and the level of additional refinements that would go into a site-specific multipathway assessment, were one to be conducted, we are confident that the HQ for ingestion exposure, specifically cadmium and mercury through fish ingestion, is at or below 1. For POM, the maximum cancer risk under the rural gardener scenario would likely decrease to below 1-in-1 million. Further details on the Tier 3 screening assessment can be found in Appendix 10–11 of *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule.*

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 0.004 μg/m^3 is well below the NAAQS for lead, indicating low potential for multipathway risk of concern due to lead emissions.

Detailed information about the assessment is provided in the document titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking.

b. Neoprene Production Source Category

As mentioned above, we did not identify reported PB–HAP emissions from the Neoprene Production source category, and we could not undertake the three-tier human health risk screening assessment that was conducted for the SOCMI source category. However, we note that we would expect dioxins likely to be formed by combustion controls used to control chlorinated chemicals such as chloroprene from this source category. As no facility exceeded a Tier 2 screening value for dioxins in the HON multipathway risk screening assessment, including 4 HON facilities with dioxin emission rates higher than the standard being proposed for dioxins for the Neoprene Production source category (and 1 HON facility with a dioxins emission rate approximately 20 times higher than the proposed Neoprene Production emission limit), we would expect multipathway risk from dioxins from the Neoprene Production source category to screen lower than they are for the SOCMI source category after compliance with the proposed dioxin limit occurs.

4. Environmental Risk Screening Results

a. SOCMI Source Category

As described in section III.A of this preamble, we conducted a screening assessment for adverse environmental effects for the SOCMI source category. The environmental screening assessment included the following HAP: arsenic, cadmium, dioxin, methyl mercury, divalent mercury, and POMs.[48]

In the Tier 1 screening analysis for PB–HAP (other than lead, which was evaluated differently), arsenic emissions had no exceedances for any ecological benchmark. The maximum Tier 1 screening value was 200 for methyl mercury emissions for the surface soil No Observed Adverse Effects Level (NOAEL) avian ground insectivores benchmark. The other pollutants (cadmium, dioxins, POMs, divalent mercury, methyl mercury) had Tier 1 screening values above various benchmarks. Therefore, a Tier 2 screening assessment was performed for cadmium, dioxins, POMs, divalent mercury, and methyl mercury emissions.

In the Tier 2 screen, cadmium, dioxins, and POM emissions did not exceed any ecological benchmark. The following Tier 2 screening values were exceeded for methyl mercury emissions: a screening value of 5 for the fish-eating birds NOAEL benchmark (specifically for the small duck called the merganser), a screening value of 2 for the maximum allowable toxicant level for the merganser, and a screening value of 3 for avian ground insectivores (woodcock). The following Tier 2 screening values were exceeded for divalent mercury emissions: a screening value of 4 for a sediment threshold level and a screening value of 2 for an invertebrate threshold level. All of the Tier 2 exceedances for the merganser and sediment benchmarks are the result of emissions from 3 facilities acting on the same lake. The invertebrate and

[47] EPA Docket records (EPA–HQ–OAR–2017–0015): *Appendix 11 of the Residual Risk Assessment for the Taconite Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule; Appendix 11 of the Residual Risk Assessment for the Integrated Iron and Steel Source Category in Support of the Risk and Technology Review 2019 Proposed Rule; Appendix 11 of the Residual Risk Assessment for the Portland Cement Manufacturing Source Category in Support of the 2018 Risk and Technology Review Final Rule; Appendix 11 of the Residual Risk Assessment for the Coal and Oil-Fired EGU Source Category in Support of the 2018 Risk and Technology Review Proposed Rule;* and EPA Docket: (EPA–HQ–OAR–2019–0373): *Appendix 11* of the *Residual Risk Assessment for Iron and Steel Foundries Source Category in Support of the 2019 Risk and Technology Review Proposed Rule.*

[48] Note that while the environmental risk screening results includes metals (*e.g.,* arsenic, cadmium, mercury, arsenic) and POMs, the EPA in most instances used a conservative approach and modeled whole facility emissions inventories for the SOCMI source category. This means that emissions from other source categories were included for this analysis, and we have no information suggesting that metals or POMs are emitted from HON processes. See Appendix 1 of the document titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking for more details about development of the risk modeling file.

insectivore soil benchmarks are the result of emissions from 1 facility.

Since there were Tier 2 exceedances, we conducted a Tier 3 environmental risk screen. In the Tier 3 environmental risk screen, we looked at aerial photos of the lake being impacted by mercury emissions from the three HON-subject facilities. The aerial photos show that the ''lake'' is located in an industrialized area, has been channelized, and largely filled/drained. Therefore, it was determined that this ''lake'' would not support a fish population. We also looked at aerial photos of the facility that was driving the invertebrate and insectivore Tier 2 soil exceedances due to mercury emissions. The aerial photos show that the facility is located in a heavily industrialized area with the nearest ''natural areas'' being located more than 1500 meters from the facility. We re-calculated the soil screening values with the industrial areas removed and calculated a maximum Tier 3 soil screen value for mercury of 1.

We did not estimate any exceedances of the secondary lead NAAQS. The highest annual lead concentration of 0.004 μg/m^3 is well below the NAAQS for lead, indicating low potential for environmental risk of concern due to lead emissions.

We also conducted an environmental risk screening assessment specifically for acid gases (*i.e.,* HCl and HF) for the SOCMI source category. 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. Detailed information about the assessment is provided in the document titled *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking.

b. Neoprene Production Source Category

As mentioned above, because we did not identify reported PB–HAP emissions, we did not undertake the environmental risk screening assessment of PB–HAP for the Neoprene Production source category. However, we note that no facility exceeded a Tier 2 screening value for dioxins in the HON environmental risk screening assessment, including 4 HON facilities with dioxin emission rates higher than those being proposed for the Neoprene Production source category and 1 HON facility with a dioxin emission rate approximately 20 times higher than the proposed emission limits for the Neoprene Production source category.

Furthermore, we conducted an environmental risk screening assessment for acid gases (*i.e.,* HCl and HF) for the Neoprene Production source category; however, there were no reported emissions of HF at this facility. For HCl, the average modeled concentration around the 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 (*i.e.,* each off-site data point in the modeling domain) was below the ecological benchmarks for the facility. Detailed information about the assessment is provided in the document titled *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which is available in the docket for this rulemaking.

5. Facility-Wide Risk Results

a. HON Facilities

We conducted an assessment of facility-wide (or ''whole facility'') risk as described above to characterize the source category risk in the context of whole facility risk. We estimated whole facility risks using the NEI-based data described in section III.C of this preamble. The maximum lifetime individual cancer risk posed by the 195 modeled facilities (there are 207 HON facilities; however, only 195 of these facilities are included in the risk assessment based on available data, which corresponds to 222 EIS facility IDs) based on whole facility emissions is 2,000-in-1 million with EtO emissions from PRDs (74 percent) and equipment leaks (20 percent) from SOCMI source category emissions driving the risk. The total estimated cancer incidence based on facility-wide emission levels is 2 excess cancer cases per year. EtO emissions contribute 81 percent and chloroprene emissions contribute 3 percent of the total cancer incidence. Within 50 km (~31 miles) of HON-subject facilities, the population exposed to cancer risk greater than 100-in-1 million for HON facility-wide emissions is approximately 95,000 people, and the population exposed to cancer risk greater than or equal to 1-in-1 million is approximately 8.9 million people. The maximum chronic noncancer TOSHI posed by whole facility emissions is estimated to be 4 (for respiratory effects) due mostly (98 percent) to emissions from 2 facilities. Emissions from one facility contribute to 83 percent of the TOSHI, with approximately 60 percent of the total TOSHI from non-source category emissions of chlorine and another 15 percent from source category emissions of chlorine. Emissions from the second facility contribute to 15 percent of the TOSHI, with approximately 11 percent of the total TOSHI from source category emissions of acrylic acid and 2 percent from source category emissions of acrylonitrile. Approximately 1,100 people are estimated to be exposed to a TOSHI greater than 1 due to whole facility emissions.

b. Neoprene Production Facility

We also performed a facility-wide assessment for the facility in the Neoprene Production source category to characterize the source category risk in the context of whole facility risk. Note that this facility was also included the HON facility-wide risk assessment because it has HON sources as well as neoprene production sources (see section III.A.5.a of this preamble). The maximum lifetime individual cancer risk posed by the one neoprene production facility based on whole facility emissions is 600-in-1 million driven by chloroprene emissions from maintenance vents (66 percent total, 55 percent from neoprene production sources and 11 percent from HON sources), storage vessels (9 percent total, all from neoprene production sources), equipment leaks (7 percent total, 3 percent from neoprene production sources and 4 percent from HON sources), and wastewater (7 percent, all from neoprene production sources). The total estimated cancer incidence based on facility-wide emission levels is 0.06 excess cancer cases per year, or 1 case approximately every 17 years. Within 50 km (~31 miles) of the Neoprene Production facility, the population exposed to cancer risk greater than 100-in-1 million for facility-wide emissions is approximately 2,300 people, and the population exposed to cancer risk greater than or equal to 1-in-1 million is approximately 890,000 people. The maximum chronic noncancer TOSHI posed by whole facility emissions is estimated to be 0.3 (for respiratory effects) due to chlorine emissions.

6. Community-Based Risk Assessment

We also conducted a community-based risk assessment for HON-subject

facilities (which includes the one neoprene production facility). The goal of this assessment is to estimate cancer risk from HAP emitted from all local stationary point sources for which we have emissions data. We estimated the overall inhalation cancer risk due to emissions from all stationary point sources impacting census blocks within 10 km (~6.2 miles) of the 195 HON facilities. Specifically, we combined the modeled impacts from category and non-category HAP sources at HON facilities, as well as other stationary point source HAP emissions. Within 10 km of HON-subject facilities, we identified 2,700 non-source category facilities that could potentially also contribute to HAP inhalation exposures.

We first looked at what the maximum risk is for communities around SOCMI facilities. The results indicate that the community-level maximum individual cancer risk is the same as in the source category MIR and maximum risk for the facility-wide assessment, 2,000-in-1 million. The assessment estimated that essentially all (greater than 99.9 percent) of the MIR is attributable to emissions from the SOCMI source category. We then looked at what the communities' risks are from all emissions sources for which we had data. Within 10 km, the population exposed to cancer risks greater than 100-in-1 million from all nearby emissions is approximately 104,000. For comparison, approximately 87,000 people have cancer risks greater than 100-in-1 million due to HON emissions and approximately 95,000 people have cancer risks greater than 100-in-1 million due to HON facility-wide emissions (see Table 3 of this preamble). The overall cancer incidence for this exposed population (*i.e.,* populations with risks greater than 100-in-1 million living within 10 km of HON facilities) is 0.5, with 91 percent of the cancer incidence from HON processes, 7 percent from non-HON processes at HON facilities (a total of 98 percent from HON facilities), and 2 percent from other nearby stationary point sources that are not HON facilities.

The population exposed to cancer risks greater than or equal to 1-in-1 million in the community-based assessment is approximately 5.8 million people. For comparison, approximately 2.8 million people have cancer risks greater than or equal to 1-in-1 million due to HON process emissions and approximately 3.2 million people have cancer risks greater than 1-in-1 million due to HON facility-wide emissions (see Table 3 of this preamble). The overall cancer incidence for this exposed population (*i.e.,* people with risks greater than or equal to 1-in-1 million and living within 10 km of HON facilities) is 2, with 69 percent of the incidence due to emissions from HON processes, 16 percent from emissions of non-HON processes at HON facilities (that is, a total of 85 percent from emissions from HON facilities) and 15 percent from emissions from other nearby stationary sources that are not HON facilities.

After the controls proposed in this action are implemented for both the SOCMI and Neoprene Production source categories (see section III.B.2), the community-level maximum individual cancer risk will be reduced to the same as the facility-wide assessment, 1,000-in-1 million, from non-HON processes emitting ethylene oxide at a single facility. The assessment estimated that 98 percent of the MIR is attributable to emissions from non-HON processes at a HON facility. The population (within 10 km of HON facilities) exposed to cancer risks greater than 100-in-1 million from all nearby emissions will be significantly reduced from 104,000 people to 4,200 people; a 96 percent reduction from the baseline. The populations exposed to cancer risks greater than 100-in-1 million from the SOCMI source category and facility-wide emissions are similarly reduced, from 87,000 people to 0 for source category emissions and from 95,000 to 2,500 for facility-wide emissions (see Table 3 of this preamble). Furthermore, the overall cancer incidence for this exposed population is expected to be reduced from 0.5 to 0.02. The percentage of the cancer incidence due to emissions of HON processes is reduced from 91 percent to 9 percent. The percentage of the cancer incidence due to emissions of non-HON processes at HON facilities and emissions from other nearby stationary sources proportionately shifts to 57 percent and 34 percent respectively. EtO emissions across these sources remain the largest source of incidence, accounting for 89 percent of the overall cancer incidence for this exposed population.

The post-control population exposed to cancer risks greater than or equal to 1-in-1 million, 5.8 million people, would remain approximately the same as the baseline. In comparison, after the controls proposed in this action, the number of people with risks greater than or equal to 1-in-1 million due to source category emissions would reduce from 2.8 million to 2.5 million and due to facility-wide emissions from 3.2 million to 3.1 million (see Table 3 of this preamble). The lack of change from the baseline is largely due to the impacts from non-HON processes at HON facilities and from other nearby stationary sources maintaining the risks greater than or equal to 1-in-1 million for the exposed population. However, the overall cancer incidence for this exposed population is expected to be reduced from 2 to 0.7. The percentage of the cancer incidence from HON processes is expected to decrease from 69 to 38 percent. The cancer incidence from non-HON processes at HON facilities and from other nearby stationary sources are expected to proportionately shift to 29 percent and 32 percent, respectively.

Overall, the proposed emission reductions in this rule provide a substantial reduction in risks to the communities living around HON facilities. The number of people at cancer risks greater than 100-in-1 million is reduced from 104,000 people to 4,200 people, a 96 percent reduction. EtO emissions are by far the largest source of remaining risk in the community-based risk assessment, accounting for 85 percent across all sources. Moving forward, the EPA expects to continue to address EtO emissions for other chemical sector source categories.

TABLE 3—INHALATION CANCER RISK ASSESSMENT RESULTS FOR COMMUNITIES LIVING WITHIN 10 KM OF HON FACILITIES

Risk assessment	Maximum individual cancer risk (-in-1 million)	Estimated population at increased risk of cancer	
		>100-in-1 million	≥1-in-1 million
Baseline (Pre-Control)			
SOCMI Source Category	2,000	87,000 (10 km)	2.8 million (10 km).
Facility-wide	2,000	95,000 (10 km)	3.2 million (10 km).
Community	2,000	104,000 (10 km)	5.8 million (10 km).

TABLE 3—INHALATION CANCER RISK ASSESSMENT RESULTS FOR COMMUNITIES LIVING WITHIN 10 KM OF HON FACILITIES—Continued

Risk assessment	Maximum individual cancer risk (-in-1 million)	Estimated population at increased risk of cancer	
		>100-in-1 million	≥1-in-1 million
After Implementation of Proposed Controls (Post-Control)			
SOCMI Source Category	100	0 (10 km)	2.5 million (10 km).
Facility-wide [1]	1,000	2,500 (10 km)	3.1 million (10 km).
Community	1,000	4,200 (10 km)	5.8 million (10 km).

[1] Facility-wide post-control risks include proposed controls for the SOCMI and Neoprene Production source categories.

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

1. Risk Acceptability Under the Current MACT Standards

As noted in section II.D of this preamble, we weigh a wide range of health risk measures and factors in our risk acceptability determination, including the cancer MIR, the number of persons in various cancer and noncancer risk ranges, cancer incidence, the maximum noncancer TOSHI, the maximum acute noncancer HQ, the extent of noncancer risks, the distribution of cancer and noncancer risks in the exposed population, and risk estimation uncertainties (54 FR 38044, September 14, 1989).

Under the current MACT standards for the SOCMI source category, the risk results indicate that the MIR is 2,000-in-1 million, driven by emissions of EtO, and well above 100-in-1 million, which is the presumptive limit of acceptability. The estimated incidence of cancer due to inhalation exposures is 2 excess cancer case per year. The population estimated to be exposed to cancer risks greater than 100-in-1 million is approximately 87,000, and the population estimated to be exposed to cancer risks greater than or equal to 1-in-1 million is approximately 7.2 million. The estimated maximum chronic noncancer TOSHI from inhalation exposure for this source category is 2 for neurological effects. The acute risk screening assessment of reasonable worst-case inhalation impacts indicates a maximum acute HQ of 3.

Under the current MACT standards for the Neoprene Production source category, the risk results indicate that the MIR is 500-in-1 million, driven by emissions of chloroprene, and is above 100-in-1 million, the presumptive limit of acceptability. The estimated incidence of cancer due to inhalation exposures is 0.05 excess cancer case per year. The population estimated to be exposed to cancer risks greater than 100-in-1 million is approximately 2,100, and the population estimated to be exposed to cancer risks greater than or equal to 1-in-1 million is approximately 690,000 million. The estimated maximum chronic noncancer TOSHI from inhalation exposure for this source category is 0.05 for neurological effects, indicating low likelihood of adverse noncancer effects from long-term inhalation exposures. The acute risk screening assessment of reasonable worst-case inhalation impacts indicates a maximum acute HQ of 0.3. Therefore, we conclude that adverse effects from acute exposure to emissions from this category are not anticipated.

Considering all of the health risk information and factors discussed above, particularly the high MIR for both the SOCMI and Neoprene Production source categories, the EPA proposes that the risks for both source categories are unacceptable. As noted in section II.A of this preamble, when risks are unacceptable, under the 1989 Benzene NESHAP approach and CAA section 112(f)(2)(A), the EPA must first determine the emissions standards necessary to reduce risk to an acceptable level, and then determine whether further HAP emissions reductions are necessary to provide an ample margin of safety to protect public health or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. Therefore, pursuant to CAA section 112(f)(2), we are proposing certain standards for emission sources of EtO in the HON and certain standards for emission sources of chloroprene from the Neoprene Production source category that are more protective than the current HON and P&R I MACT standards.

2. Proposed Controls To Address Unacceptable Risks

As previously discussed, we conducted risk assessments of the SOCMI and Neoprene Production source categories because the 2016 revisions to the EPA's IRIS inhalation URE for EtO and the 2010 development of the EPA's IRIS inhalation URE for chloroprene showed that both these pollutants are more toxic than previously known.

For the SOCMI source category, we identified EtO as the cancer risk driver from HON sources. We are aware of 15 HON facilities reporting more than 0.1 tpy of EtO emissions in their emissions inventories from HON processes and two other facilities that are new or under construction with HON processes that we expect will exceed this threshold (but for which we do not yet have emissions inventory information). Of these 17 facilities, 12 facilities produce and emit EtO, which is a process subject to the HON MACT standards. In addition, all 17 of these facilities have additional HON processes that use and emit EtO in the production of glycols, glycol ethers, or ethanolamines. From our residual risk assessment, eight facilities with emissions of EtO from various HON processes have cancer risks above 100-in-1 million, and many different emission sources drive risk at these facilities. Thus, in order to reduce emissions of EtO from HON processes, the EPA is proposing more stringent control requirements for process vents, storage vessels, equipment leaks, heat exchange systems, wastewater, maintenance vents, flares, and PRDs that emit or have the potential to emit EtO. As discussed later in this preamble, we are proposing that these requirements that will reduce risk to an acceptable level also provide an ample margin of safety to protect public health, and that no additional requirements are needed to prevent an adverse environmental effect.

For the Neoprene Production source category, we identified chloroprene as the HAP cancer risk driver from the only facility in the Neoprene Production source category. Thus, in order to reduce risk posed by emissions from

neoprene production processes to an acceptable level, the EPA is proposing more stringent control requirements for process vents, storage vessels, wastewater, maintenance vents, and PRDs that emit or have the potential to emit chloroprene. Also, as discussed later in this preamble, we are proposing that these requirements that will reduce risk to an acceptable level also provide an ample margin of safety to protect public health, and that no additional requirements are needed to prevent an adverse environmental effect.

We discuss the control options we evaluated for reducing EtO emissions from HON processes in section III.B.2.a of this preamble and discuss the control options we evaluated for reducing chloroprene emissions from P&R I processes producing neoprene in section III.B.2.b of this preamble.

a. EtO Controls for HON Processes

i. Process Vents and Storage Vessels

Emissions of EtO can occur from several types of gas streams associated with HON processes, such as distillation columns, evaporator vents, and vacuum operations, as well as during vapor displacements and heating losses. HON storage vessels 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. EtO is typically stored under pressure as a liquified gas, but may also be found in small amounts in atmospheric storage vessels storing liquid products that are formed with ethylene oxide as a reactant in their production. Typical emissions from atmospheric storage tanks occur from working and breathing losses while pressure vessels are considered closed systems and, if properly maintained and operated, should have virtually no emissions. In some instances, pressurized vessels also could use a blanket of inert gas, most often nitrogen, to maintain a non-decomposable vapor space, and continuous purge of vapor space from non-loading operations could also lead to emissions from storage vessels.

The current HON standards divide process vents into Group 1 process vents, which require control, and Group 2 process vents, which generally do not require controls provided they do not exceed Group 1 thresholds. All HON Group 1 and Group 2 process vents are continuous. The Group 1 and Group 2 designations for process vents are based on volumetric flow rate, total organic HAP concentration, and the TRE index value.[49] The current HON standard requires uncontrolled Group 1 process vents to reduce total organic HAP emissions by 98 percent by weight 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. We provide more details about process vents in our technology review discussion (see section III.C.3 of this preamble).

Similarly, the current HON standards divide storage vessels into Group 1 storage vessels, which require control, and Group 2 storage vessels, which generally do not require controls provided they do not exceed Group 1 thresholds. The Group 1 and Group 2 designation for storage vessels is based on the volume of the storage vessel and MTVP of the material stored. Group 1 storage vessels are those with capacities between 75 m^3 and 151 m^3 and a MTVP greater than or equal to 13.1 kPa, and those with capacities greater than or equal to 151 m^3 and a MTVP greater than or equal to 5.2 kPa. The current HON standards require Group 1 storage vessels to reduce total HAP emissions by 95 percent (or 90 percent if the storage vessel was installed on or before December 31, 1992) 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. Owners and operators of Group 1 storage vessels storing a liquid with a MTVP of total organic HAP less than 76.6 kPa are also allowed to reduce organic HAP by utilizing an IFR, an EFR, an EFR converted to an IFR, routing the emissions to a process or a fuel gas system, or vapor balancing. For Group 1 storage vessels storing a liquid with a MTVP of total organic HAP greater than or equal to 76.6 kPa, owners and operators can reduce organic HAP emissions by 95 percent by venting emissions through a closed vent system to any combination of control devices, control emissions by routing them to a process or a fuel gas system, or by using vapor balancing. Pressure vessels (operating in excess of 204.9 kPa without emissions to the atmosphere) may also store materials with EtO. For storage vessels, the HON 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 organic HAP emissions being sent to the control device. We provide more details about storage vessels in our technology review discussion (see section III.C.2 of this preamble)

Results of our risk assessment indicate that two HON facilities present cancer risks greater than 100-in-1 million just from EtO emissions from process vent sources. At one of the two facilities, EtO risk from process vent emission sources emitted through PRDs is approximately 75 percent of the facility's total SOCMI source category risk of 2000-in-1 million. At the other facility, EtO risk from process vent emission sources is approximately 20 percent of the facility's total SOCMI source category risk of 500-in-1 million. Additionally, EtO from storage vessels accounts for approximately 70-in-1 million of the source category MIR of 2,000-in-1 million risk. To understand how to best address risk within the SOCMI source category, we reviewed information from our CAA section 114 request for this rulemaking (see section II.C of this preamble) and identified six facilities that measured EtO emissions from 14 emission points associated with process vents and storage vessels. The information gathered for these emission points indicates that HON sources with EtO emissions from process vents and storage vessels typically use combustion devices (*e.g.,* thermal oxidizers) to control EtO emissions. Of these 14 emission points, seven are controlled by either a thermal incinerator, regenerative thermal oxidizer, vapor combustion unit, or catalytic oxidation unit; three are controlled by a scrubber; and the remaining four are uncontrolled. Based on results from the risk assessment, we determined that the current MACT standards for HON process vents and storage vessels do not result in sufficient reductions of EtO emissions to reduce risk to an acceptable level, and, therefore, we evaluated available control technologies with a higher level of control, as discussed below.

In the MON final RTR (see 85 FR 49084, August 12, 2020), the EPA evaluated options to control EtO emissions from process vents and storage tanks ''in ethylene oxide service'' [50] regardless of whether the emission source is classified as Group 1 or Group 2. To reduce EtO emissions from MON process vents and storage

[49] See section III.C.3.a of this preamble for a description of the TRE index value and how the concept is currently used in the HON.

[50] In the MON, a process vent in ethylene oxide service means 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, ethylene oxide emissions greater than or equal to 5 lb/yr (2.27 kg/yr); a storage vessel in ethylene oxide service means a storage tank of any capacity and vapor pressure storing a liquid that is at least 0.1 percent by weight of ethylene oxide.

tanks in EtO service, the EPA finalized a requirement to either: (1) Vent emissions through a closed-vent system to a control device that reduces EtO by greater than or equal to 99.9 percent by weight or to a concentration less than 1 ppmv for each process vent and storage tank vent (or, for multiple process vents, to less than 5 lb/yr for all combined process vents); or (2) vent emissions through a closed-vent system to a flare meeting the flare operating requirements discussed in section III.D.1 of this preamble.

We are proposing the same ''in ethylene oxide service'' definitions as used in MON. For process vents, we are proposing to define ''in ethylene oxide service'' in the HON at 40 CFR 63.101 to mean each process vent in a process that, when uncontrolled, contains a concentration of greater than or equal to 1 ppmv undiluted EtO, and when combined, the sum of all these process vents would emit uncontrolled EtO emissions greater than or equal to 5 pounds per year (2.27 kilograms per year). For storage vessels of any capacity and vapor pressure, we are proposing to define ''in ethylene oxide service'' in the HON at 40 CFR 63.101 to mean that the concentration of EtO of the stored liquid is at least 0.1 percent by weight. Additionally, we are proposing that unless specified by the Administrator, owners and operators may calculate the concentration of EtO of the fluid stored in a storage vessel if information specific to the fluid stored is available such as concentration data from safety data sheets. We are also proposing that the exemption for ''vessels storing organic liquids that contain organic hazardous air pollutants only as impurities'' listed in the definition of ''storage vessel'' at 40 CFR 63.101 does not apply for storage vessels in EtO service.

We are proposing the same MON EtO-specific requirements [51] in the HON for HON process vents and storage vessels ''in ethylene oxide service,'' except that we are proposing to add a requirement that if a combustion device is used to comply with the concentration standard, then the concentration must be corrected to 3 percent oxygen to determine compliance.[52] Accordingly, to help reduce risk from the SOCMI source category to an acceptable level, we are proposing that HON process vents in EtO service either reduce emissions of EtO by: (1) Venting emissions through a closed vent system to a control device that reduces EtO 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 III.D.1 of this preamble (see proposed 40 CFR 63.113(j)). To help reduce risks from the SOCMI source category to an acceptable level, we are proposing that HON storage vessels in EtO service either reduce emissions of EtO by: (1) Venting emissions through a closed vent system to a control device that reduces EtO 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 III.D.1 of this preamble (see proposed 40 CFR 63.119(a)(5)). Additionally, we propose removing the option to allow use of a design evaluation in lieu of performance testing to demonstrate compliance for storage vessels in EtO service to ensure that the required level of control is achieved (see proposed 40 CFR 63.124(a)(1)(i) and (b)(3)). 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 proposed 40 CFR 63.124 on each existing control device in EtO service and on each newly installed control device in EtO service to verify performance at the required level of control. Additionally, we are proposing at 40 CFR 63.124(b) that owners or operators conduct periodic performance testing on non-flare control devices in EtO service every 5 years. Additional information on these evaluated control options to reduce EtO risk from HON process vents and storage vessels is found in the document titled *Analysis of Control Options for Process Vents and Storage Vessels to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON,* which is available in the docket for this action.

ii. Equipment Leaks

Emissions of EtO 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 applicable equipment is those components, including pumps, compressors, agitators, PRDs, sampling collection systems, OEL, 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 HON 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. We provide more details about equipment leaks in our technology review discussion (see section III.C.6 of this preamble).

Results from our risk assessment indicate that, for the source category MIR of 2,000-in-1 million, approximately 20 percent is from emissions of EtO related to HON equipment leaks. We also note that the risk from EtO from HON equipment leaks at seven facilities (including the facility driving the MIR) is ≥100-in-1 million. To help reduce the risk from the SOCMI source category to an acceptable level, for EtO emissions from HON equipment leaks, we performed a review of available measures for reducing EtO emissions from components that are most likely to be in EtO service, which include connectors (in gas and vapor service or light liquid service), pumps (in light liquid service), and valves (in gas or light liquid service). Almost all equipment leak emissions of EtO come from these three pieces of equipment. We identified options to further strengthen LDAR practices for these three pieces of equipment, including by lowering the leak definitions and/or requiring more frequent monitoring with EPA Method 21 of 40 CFR part 60, appendix A–7, to find more equipment leaks faster and fix them.

For gas/vapor and light liquid connectors in EtO service, we identified three options: (1) Require connector monitoring at a leak definition of 500 ppm with annual monitoring and no reduction in monitoring frequency (*i.e.,* no skip periods), (2) require connector monitoring at a leak definition of 100 ppm with annual monitoring and no reduction in monitoring frequency, and

[51] See 40 CFR 63.2493.

[52] We are proposing the concentration correction requirement because, unlike MON sources with ethylene oxide which were using scrubber controls, HON sources are generally using combustion controls for ethylene oxide and a concentration correction for combustion controls assures dilution with air is not an additional strategy that facilities could use to bypass control requirements.

(3) require connector monitoring at a leak definition of 100 ppm with monthly monitoring and no reduction in monitoring frequency.

For light liquid pumps in EtO service, we identified three options: (1) Lower the leak definition from 1,000 ppm to 500 ppm with monthly monitoring, (2) lower the leak definition from 1,000 ppm to 100 ppm with monthly monitoring, or (3) 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 valves in EtO service, we identified two options: (1) Require a leak definition of 500 ppm with monthly monitoring and no reduction in monitoring frequency, or (2) lower the leak definition from 500 ppm to 100 ppm with monthly monitoring and no reduction in monitoring frequency.

Due to the high residual risk for some of the facilities from equipment leaks of EtO and the potential need for greater emission reduction to meet an acceptable level of risk for the SOCMI source category, we also evaluated a more stringent option that combines several of the component options. We evaluated the combined option of requiring monthly monitoring for valves (in gas/vapor and light liquid service), connectors (in gas/vapor and light liquid service), and pumps (light liquid service) in EtO service at a leak definition of 100 ppm for valves and connectors and 500 ppm for pumps using EPA Method 21 of 40 CFR part 60, appendix A–7. This combined option also does not allow equipment in EtO service to be monitored less frequently with skip periods nor allow facilities to take advantage of the delay of repair provisions. Increasing the monitoring frequency to monthly was analyzed for connectors because they are the most numerous equipment components at chemical facilities, and they contribute the most to the baseline emissions from leaking equipment at the EtO emitting facilities.

For the component specific control options, we calculated the EtO baseline emissions and emissions after implementation of controls for each facility using average VOC emission rates for each component, and the component counts and the EtO weight percent of the process from the responses to the EPA's CAA section 114 request. For the combined option of monthly monitoring of gas and light liquid valves and connectors at 100 ppm and light liquid pumps at 500 ppm, we do not have emission factors to estimate reductions for increased monitoring frequencies for connectors. Where no simplified emission factor method exists to determine potential reductions of applying the option, we estimated emissions reductions based on the approach used in other rules,[53] where detailed leak data was available or where a leak distribution could be assumed. The equipment leaks model uses a Monte Carlo analysis to estimate emissions from EtO facility equipment leaks. A detailed discussion of the model is found in the memorandum *Analysis of Control Options for Equipment Leaks to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON,* which is available in the docket for this action.

We are proposing the same ''in ethylene oxide service'' definition for equipment as used in MON.[54] For equipment leaks, we are proposing to define ''in ethylene oxide service'' in the HON at 40 CFR 63.101 to mean any equipment that contains or contacts a fluid (liquid or gas) that is at least 0.1 percent by weight of EtO. For HON equipment in EtO service, in order to achieve greater emissions reductions to help meet an acceptable level of risk for the SOCMI source category, we are proposing the following combined requirements: monitoring of connectors in gas/vapor and light liquid service at a leak definition of 100 ppm on a monthly basis with no reduction in monitoring frequency or delay of repair (see proposed 40 CFR 63.174(a)(3) and 40 CFR 63.174(b)(3)(vi)); light liquid pump monitoring at a leak definition of 500 ppm monthly (see proposed 40 CFR 63.163(b)(2)(iv)); and gas/vapor and light liquid valve monitoring at a leak definition of 100 ppm monthly with no reduction in monitoring frequency or delay of repair (see proposed 40 CFR 63.168(b)(2)(iv) and 40 CFR 63.168(d)(5)). Additional information on all evaluated control options to reduce EtO risk from HON equipment leaks is found in the document titled *Analysis of Control Options for Equipment Leaks to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON,* which is available in the docket for this action.

[53] Gas Plant Equipment Leak Monte Carlo Model Code and Instructions. October 21, 2021. EPA Docket No. EPA–HQ–OAR–2021–0317. Control Options for Equipment Leaks at Gasoline Distribution Facilities. October 20, 2021. EPA Docket No. EPA–HQ–OAR–2020–0371.

[54] See 40 CFR 63.2550.

iii. Heat Exchange Systems

Emissions of EtO from heat exchange systems occur when a heat exchanger's internal tubing material corrodes or cracks, allowing some process fluids to mix or become entrained with the cooling water. Pollutants (*e.g.,* EtO) 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). Heat exchange systems subject to the HON are required to monitor for leaks of process fluids into cooling water and take actions to repair leaks within 45 days if they are detected (and facilities may delay the repair of leaks if they meet certain criteria). The current HON MACT standard for heat exchange systems allows the use of any method listed in 40 CFR part 136 to be used to sample cooling water for leaks for the HAP listed in Table 4 to subpart F (recirculating systems) and Table 9 to subpart G (once-through systems) (and other representative substances such as TOC or VOC that can indicate the presence of a leak can also be used). In addition, the HON allows facilities 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. We provide more details about heat exchange systems in our technology review discussion (see section III.C.1 of this preamble).

Results from our risk assessment indicate that EtO leaks from heat exchange systems result in risks of 400-in-1 million at one facility and 90-in-1 million at another. The HON heat exchange system technology review (see section III.C.1 of this preamble) identified use of the Modified El Paso Method as a development in practice for heat exchange systems at HON-subject facilities. Specifically, we identified the following control option for heat exchange systems: quarterly monitoring with the Modified El Paso Method, using a leak action level defined as a total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 ppmv (and not allowing delay of repair of leaks for more than 30 days where a total strippable hydrocarbon concentration (as methane) in the stripping gas of 62 ppmv or higher is found). This option would also require follow-up monitoring at the same monitoring location where the leak was identified to ensure that any leaks found were fixed. For heat exchange systems, we are proposing to define ''in ethylene oxide

service'' in the HON at 40 CFR 63.101 to mean each heat exchange system in a process that cools process fluids (liquid or gas) that are 0.1 percent or greater by weight of EtO. To address the risk from EtO emissions due to HON heat exchange system leaks, we evaluated the following option for HON heat exchange systems ''in ethylene oxide service'': (A) require use of the Modified El Paso Method (see section III.C.1 of this preamble), (B) increase the Modified El Paso Method monitoring frequency from quarterly to weekly, (C) reduce the allowed amount of repair time from 45 days after finding a leak to 15 days from the sampling date, and (D) prohibit delay of repair. We anticipate this option would reduce EtO emissions from leaking heat exchange systems by 93 percent because leaks would be identified and repaired quicker, and this is needed to help reduce risk from the SOCMI source category. For this reason, we are proposing to require weekly monitoring for leaks for heat exchange systems in EtO service using the Modified El Paso Method (see proposed 40 CFR 63.104(g)(6)), and if a leak is found, we are proposing owners and operators must repair the leak to reduce the concentration or mass emissions rate to below the applicable leak action level as soon as practicable, but no later than 15 days after the sample was collected with no delay of repair allowed (see proposed 40 CFR 63.104(h)(6)). Additional information on this evaluated control option to reduce EtO risk from HON heat exchange systems is found in the document titled *Analysis of Control Options for Heat Exchange Systems to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON,* which is available in the docket for this action.

iv. Wastewater

EtO is emitted into the air from wastewater collection, storage, and treatment systems that are uncovered or open to the atmosphere through volatilization of the compound at the liquid surface. Emissions occur by diffusive or convective means, or both. Diffusion occurs when organic pollutant concentrations at the water surface are much higher than ambient concentrations. The organic pollutants volatilize, or diffuse into the air, to reach equilibrium between the aqueous and vapor phases. Convection occurs when air flows over the water surface, sweeping organic vapors from the water surface into the air. The rate of volatilization is related directly to the speed of the air flow over the water surface.

The current HON standards divide wastewater streams into Group 1 wastewater streams, which require controls, and Group 2 wastewater streams, which generally do not require controls provided they do not exceed Group 1 thresholds. The Group 1 and Group 2 designations for wastewater streams are based on volumetric flow rate and total annual average organic HAP concentration. The HON specifies performance standards for treating Group 1 wastewater streams using open or closed biological treatment systems or using a design steam stripper with vent control. For APCDs (*e.g.,* thermal oxidizers) used to control emissions from collection system components, steam strippers, or closed biological treatment, the HON provides owners or operators several compliance options, including 95 percent destruction efficiency, a 20 ppmv outlet concentration, or design specifications for temperature and residence time. We provide more details about wastewater streams in our technology review discussion (see section III.C.5 of this preamble).

Results from our risk assessment indicate that EtO emissions from wastewater result in risks of 200-in-1 million at one facility and 70-in-1 million at another. For wastewater, we are proposing to define ''in ethylene oxide service'' in the HON at 40 CFR 63.101 to mean each wastewater stream that contains total annual average concentration of EtO greater than or equal to 1 part per million by weight at any flow rate. To help reduce the risk from EtO emissions to an acceptable level, we are proposing that owners and operators of HON sources manage and treat any wastewater streams that are ''in ethylene oxide service'' (see proposed 40 CFR 63.132(c)(1)(iii) and (d)(1)(ii)) as they would a Group 1 wastewater stream. Additional information on this evaluated control option to reduce EtO risk from HON wastewater streams is found in the document titled *Analysis of Control Options for Wastewater Streams to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON,* which is available in the docket for this action.

Finally, we are aware of at least two HON-subject facilities that reported EtO emissions from heat exchange systems due to disposing EtO entrained water (*e.g.,* condensate water, quench and glycol bleeds) into their cooling water. While these are not ''leaks'' from heat exchange systems, this water is being combined with water in heat exchange systems that should actually be considered a potential source of wastewater, as it contains EtO. One of these facilities reported approximately 2.5 tpy EtO were released to the atmosphere in 2017 from this activity; the other facility reported about 0.5 tpy EtO emissions (for 2017) from a similar activity. In order to help reduce risk from the SOCMI source category to an acceptable level, and in an effort to eliminate these types of EtO emissions from wastewater being injected into heat exchange systems, we are also proposing to prohibit owners and operators from injecting water into or disposing of water through any heat exchange system in a CMPU meeting the conditions of 40 CFR 63.100(b)(1) through (3) if the water contains any amount of EtO, has been in contact with any process stream containing EtO, or the water is considered wastewater as defined in 40 CFR 63.101 (see proposed 40 CFR 63.104(k)).

v. Maintenance Vents

We are proposing the new term ''maintenance vent'' for process vents that are only used as a result of startup, shutdown, maintenance, or inspection of equipment where equipment is emptied, depressurized, degassed, or placed into service. We provide more details about maintenance vents in section III.D.4 of this preamble. We identified three HON-subject facilities that reported EtO emissions from maintenance vents in their 2017 NEI from HON processes that use and emit EtO. We determined that, in order to help reduce EtO risk from the SOCMI source category to an acceptable level, facilities would need to limit their amount of EtO being emitted through maintenance vents (*i.e.,* equipment openings). For this reason, we are proposing a requirement that owners and operators cannot release more than 1.0 ton of EtO from all maintenance vents combined in any consecutive 12-month period (see proposed 40 CFR 63.113(k)(4)). We based this proposed limit on the largest amount of EtO emissions reported in the 2017 NEI for all maintenance vents combined at any single HON-subject facility (*i.e.,* one facility reported about 1 ton of EtO from maintenance activities which corresponded to 80-in-1 million risk). Facilities could use a portable thermal oxidizer to control excess EtO emissions from their maintenance vents in order to meet the proposed 1.0 tpy EtO maintenance vent limit; [55] however,

[55] We surmised that a portable thermal oxidizer is a reasonable control option for maintenance vents because it would require a significant effort to identify and characterize each potential release point to install permanent APCDs.

based on the 2017 NEI, we anticipate that all HON-subject facilities with processes that use and emit EtO can already meet this proposed emissions limit without additional control.

vi. Flares

We determined that to achieve an acceptable level of risk, facilities need to limit the amount of ethylene oxide they are emitting from flaring from all HON emission sources at their facility, even after applying the control options for the other HON emission sources that we evaluated to reduce risk to an acceptable level. This determination is supported by the fact that there is one facility with a risk of 500-in-1 million from flaring EtO and another facility with risk of 90-in-1 million as a result of this same operation. Therefore, we are proposing a requirement that owners and operators can send no more than 20 tons of EtO to all of their flares combined in any consecutive 12-month period from all HON emission sources at a facility (see proposed 40 CFR 63.108(p)).

We identified nine HON-subject facilities that reported the use of flares in their 2017 NEI to control EtO emissions from HON processes that use and emit EtO. Two of these facilities each reported about two times more EtO emissions from their flares than the reported EtO emissions from all the other seven HON-subject facilities combined. Based on this reported emissions data, the highest risk source for flaring emitted a combined total of 2.87 tpy of EtO from its flares. In order to reduce the HON risk to an acceptable level, the EtO emissions from all flares would need to be less than or equal to 0.40 tpy (in addition to complying with other standards designed to reduce risk to an acceptable level). Assuming 98 percent flare control efficiency and back-calculating an EtO waste gas flare load, the maximum inlet load to all flares combined would need to be 20 tpy. Using the reported EtO emissions of 2.87 tpy from the highest emitting facility, we estimate that the facility's current combined total EtO load to flares is about 143.5 tpy, and that the facility would need to reduce the combined total EtO load to their flares by about 124 tpy to meet the EtO load limit of 20 tpy. For these reasons, we are proposing a requirement that owners and operators can send no more than 20 tons of EtO to all of their flares combined in any consecutive 12-month period (see proposed 40 CFR 63.108(p)) to get to an acceptable level of risk from all HON emission sources at a facility. A more thorough discussion of this analysis is included in the document titled *Analysis of Control Options for Flares to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON,* which is available in the docket for this action.

vii. PRDs

The HON currently regulates PRDs through equipment leak provisions that are applied only after the pressure release event 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) to ensure they are properly reseated and not leaking after a PRD release occurs; however, these provisions do not apply to an emissions release from a PRD (see section III.D.2 of this preamble for more detail). As previously discussed in section III.B.2.a.i of this preamble, we are aware of some instances where PRD releases of EtO emissions occurred for gas streams that would otherwise be treated as process vents. These PRD releases contribute to a large portion of the 2000-in-1 million MIR (*i.e.,* 75 percent) that we are proposing is unacceptable. While the EPA is proposing to set work practice standards for PRD releases (see section III.D.2 of the preamble), in order to help reduce risk from the SOCMI source category to an acceptable level we are also proposing at 40 CFR 63.165(e)(3)(v)(D) that any release event from a PRD in EtO service is a violation of the standard to ensure that these process vent emissions are controlled and do not bypass controls.

viii. Summary

For process vents, storage vessels, equipment leaks, heat exchange systems, wastewater, maintenance vents, flares, and PRDs, we considered the control options described above for reducing EtO risk from the SOCMI source category that are associated with processes subject to the HON. To reduce risk from the source category to an acceptable level, we propose to require control of EtO emissions from: (1) Process vents, (2) storage vessels, (3) equipment leaks, (4) heat exchange systems, and (5) wastewater ''in ethylene oxide service'' (defined in this proposal). We are also proposing requirements to reduce EtO emissions from maintenance vents, flares, and PRDs. For process vents and storage vessels in EtO service, we are proposing owners and operators reduce emissions of EtO by either: (1) Venting emissions through a closed-vent system to a control device that reduces EtO by greater than or equal to 99.9 percent by weight, to a concentration less than 1 ppmv for each process vent and storage vessel, or to less than 5 lb/yr for all combined process vents; or (2) venting emissions through a closed-vent system to a flare meeting the proposed operating and monitoring requirements for flares in NESHAP subpart F. For equipment leaks in EtO service, we are proposing the following combined requirements: monitoring of connectors in gas/vapor and light liquid service at a leak definition of 100 ppm on a monthly basis with no reduction in monitoring frequency and no delay of repair; light liquid pump monitoring at a leak definition of 500 ppm monthly; and gas/vapor and light liquid valve monitoring at a leak definition of 100 ppm monthly with no reduction in monitoring frequency and no delay of repair. For heat exchange systems in EtO service, we are proposing to require owners or operators to conduct more frequent leak monitoring (weekly instead of quarterly) and repair leaks within 15 days from the sampling date (in lieu of the current 45-day repair requirement after receiving results of monitoring indicating a leak), and delay of repair would not be allowed. For wastewater in EtO service, we are proposing to revise the Group 1 wastewater stream threshold for sources to include wastewater streams in EtO service. For maintenance vents, we are proposing a requirement that owners and operators cannot release more than 1.0 ton of EtO from all maintenance vents combined in any consecutive 12-month period. For flares, we are proposing a requirement that owners and operators can send no more than 20 tons of EtO to all of their flares combined from all HON emission sources at a facility in any consecutive 12-month period. For PRDs in EtO service, we are proposing that any atmospheric PRD release is a violation of the standard.

In all cases, we are proposing that if information exists that suggests EtO could be present in these processes, then the emission source is considered to be in EtO service unless sampling and analysis is performed to demonstrate that the emission source does not meet the definition of being in EtO service. We are proposing sampling and analysis procedures at 40 CFR 63.109. Examples of information that could suggest EtO 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.

Based on the proposed applicability thresholds, we expect that up to 17 facilities will be affected by one or more

of the proposed EtO-specific standards; and we anticipate that all of these facilities will be subject to the process vent, storage vessel, equipment leak, wastewater, and PRD provisions. We do not expect any facility to be impacted by the proposed 1.0 tpy maintenance vent EtO emission limit, and only two facilities will be affected by the proposed 20 tpy EtO flare load limit, although all facilities will be required to comply with these standards.

b. Chloroprene Controls for P&R I Neoprene Production Processes

i. Process Vents and Storage Vessels

Results from our risk assessment indicate that for the Neoprene Production source category, 65 percent of the risk presented by neoprene production processes (*i.e.,* 300-in-1 million) and 12 of the 17.5 tpy of chloroprene in the reported emissions inventory are from emissions associated with reaction processes and supporting equipment, and storage vessels at the one neoprene production facility. Specifically, 58 percent of the risk is associated with emissions from the polymer building wall fans housing much of the operations for creating neoprene, of which most of the emissions are from the opening of the polymer reactors and straining of coagulate generated after the batch polymerization occurs to make neoprene; 5 percent of the risk is from emissions from unstripped emulsion storage vessels as they are being opened and/or degassed; and 2 percent of the risk is from emissions from the wash belt dryers. An additional 18 percent of the risk is from wastewater sources, which are discussed in III.B.2.b.ii of this preamble.

For process vents, we are proposing to define ''in chloroprene service'' in P&R I at 40 CFR 63.482 to mean each continuous front-end process vent and each batch front-end process vent in a process at affected sources producing neoprene that, when uncontrolled, contains a concentration of greater than or equal to 1 ppmv undiluted chloroprene, and when combined, the sum of all these process vents would emit uncontrolled, chloroprene emissions greater than or equal to 5 lb/yr (2.27 kg/yr). For storage vessels, we are proposing to define ''in chloroprene service'' in P&R I at 40 CFR 63.482 to mean storage vessels of any capacity and vapor pressure in a process at affected sources producing neoprene storing a liquid that is at least 0.1 percent by weight of chloroprene, which would require control of the unstripped resin storage vessels and emissions from opening or degassing of these sources. Additionally, we are proposing that unless specified by the Administrator, owners and operators may calculate the concentration of chloroprene of the fluid stored in a storage vessel if information specific to the fluid stored is available such as concentration data from safety data sheets. We are proposing to require emissions from process vents and storage vessels in chloroprene service be routed to a closed vent system to a non-flare control device that reduces chloroprene by greater or equal to 99.9 percent by weight, or to a concentration less than 1 ppmv for each process vent or storage vessel vent, or less than 5 pounds per year for all combined process vents. (see proposed 40 CFR 63.484(u)(1), 40 CFR 63.485(y)(1), and 40 CFR 63.487(j)(1)). Our proposed approach would require control of process vent emissions from batch polymer reactors that the one neoprene facility has already voluntarily controlled (but that are not currently required to be controlled in P&R I) and that are considered in the baseline emissions of our risk assessment. These proposed standards would also capture emissions from the emulsion storage vessels, strainers, and wash belt dryers. We determined that the only viable way to meet these proposed standards is to enclose all of the polymer batch reactors, emulsion storage vessels, strainers, and wash belt dryers and route the vapors to a thermal oxidizer (and thereby reduce chloroprene emissions from these sources, which are fugitive in nature). We costed out permanent total enclosures, a thermal oxidizer, and ductwork and associated support equipment using the procedures in EPA's Control Cost Manual. Enclosing and routing vapors to a thermal oxidizer is expected to achieve at least 99.9 percent reduction in chloroprene emissions from the storage vessels and wash belt dryers. Due the openness of the polymer building and other emission sources that could contribute to emissions coming from the polymer building overall, we estimate that 90 percent of the chloroprene emissions will be collected in the enclosures and be reduced by at least 99.9 percent in the thermal oxidizer. The result of the control option is to reduce chloroprene emissions and risk from the polymer building, unstripped resin emulsion storage vessels, and the wash belt dryers from 12 tpy to 0.7 tpy. Because of concerns that some of these emission sources may not necessarily be considered process vents or emissions regulated for storage vessels (*e.g.,* since we are assuming permanent total enclosures will be needed to collect these emissions since they could be fugitive), we are also proposing a facility-wide chloroprene emissions cap for all neoprene production emission sources as a backstop, the result of which is based on our post-control emissions and risk for all neoprene emission sources emitting chloroprene that are reported in the emissions inventory and which is discussed in section III.B.2.b.v of this preamble.

Additional information on this evaluated control option to reduce chloroprene risk from fugitives from polymer batch reactors, emulsion storage vessels, strainers, and wash belt dryers with affected P&R I sources producing neoprene is found in the document titled *Analysis of Control Options for Process Vents and Storage Vessels to Reduce Residual Risk of Chloroprene Emissions at P&R I Affected Sources Producing Neoprene,* which is available in the docket for this action.

ii. Wastewater

Chloroprene is emitted into the air from wastewater collection, storage, and treatment systems that are uncovered or open to the atmosphere through volatilization of the compound at the liquid surface. Emissions occur by diffusive or convective means, or both. Diffusion occurs when organic concentrations at the water surface are much higher than ambient concentrations. The organics volatilize, or diffuse into the air, to reach equilibrium between aqueous and vapor phases. Convection occurs when air flows over the water surface, sweeping organic vapors from the water surface into the air. The rate of volatilization is related directly to the speed of the air flow over the water surface.

Similar to the HON, as discussed in section III.B.2.a.iv of this preamble, the current P&R I standards divide wastewater streams into Group 1 wastewater streams, which require controls, and Group 2 wastewater streams, which generally do not require controls provided they remain below Group 1 thresholds. The Group 1 and Group 2 designations for wastewater streams are based on volumetric flow rate and total annual average organic HAP concentration. P&R I specifies performance standards for treating Group 1 wastewater streams using open or closed biological treatment systems or using a design steam stripper with vent control. For APCDs (*e.g.,* thermal oxidizers) used to control emissions from collection system components, steam strippers, or closed biological treatment, P&R I provides owners or

operators several compliance options, including 95 percent destruction efficiency, a 20 ppmv outlet concentration, or design specifications for temperature and residence time. We provide more details about wastewater streams in our technology review.

Results from our risk assessment indicate that, for the Neoprene Production source category, 18 percent of the risk (*i.e.,* 80-in-1 million) and 2.6 of the 17.5 tpy of chloroprene in the reported emissions inventory are from emissions associated with wastewater. For wastewater, we are proposing to define ''in chloroprene service'' in P&R I at 40 CFR 63.482 to mean each wastewater stream that contains total annual average concentration of chloroprene greater than or equal to 10.0 ppmw at any flow rate. To address the risk from chloroprene emissions related to wastewater associated with affected P&R I sources producing neoprene, we are proposing that owners and operators manage and treat any existing wastewater streams that are ''in chloroprene service'' (see proposed 40 CFR 63.501(a)(10)(iv)) as they would a Group 1 wastewater stream. Additional information on this evaluated control option to reduce chloroprene risk from wastewater streams associated with affected P&R I sources producing neoprene is found in the document titled *Analysis of Control Options for Wastewater Streams to Reduce Residual Risk of Chloroprene From Neoprene Production Processes Subject to P&R I,* which is available in the docket for this action.

Finally, for consistency with our proposal for the HON to eliminate EtO emissions from wastewater being injected into heat exchange systems (see section III.B.2.a.iv of this preamble), we are also proposing to prohibit owners and operators from injecting water into or disposing of water through any heat exchange system in an EPPU if the water contains any amount of chloroprene, has been in contact with any process stream containing chloroprene, or the water is considered wastewater as defined in 40 CFR 63.482 (see proposed 40 CFR 63.502(n)(8)). The result of all these wastewater controls will reduce chloroprene emissions from wastewater from 2.6 tpy to 0.18 tpy in the reported emissions inventory.

iii. Maintenance Vents

We are proposing at 40 CFR 63.485(x) and 40 CFR 63.487(i) the new term ''maintenance vent'' for process vents that are only used as a result of startup, shutdown, maintenance, or inspection of equipment where equipment is emptied, depressurized, degassed, or placed into service. We provide more details about maintenance vents in section III.D.4 of this preamble as well. We evaluated the option of limiting the amount of chloroprene that a neoprene production facility can emit annually through maintenance vents (*i.e.,* equipment openings). Using their reported emissions, we determined that in order to reduce the neoprene source category risk to an acceptable level, the one neoprene production facility would need to (in addition to complying with other standards designed to reduce chloroprene risk) maintain its combined total chloroprene maintenance vent emission releases at less than or equal to 1.0 tpy. For this reason, we are proposing a requirement that owners and operators cannot release more than 1.0 tons of chloroprene from all maintenance vents combined in any consecutive 12-month period (see proposed 40 CFR 63.485(z) and 40 CFR 63.487(i)(4)). We note that, based on reported emissions, the neoprene production facility is already meeting this proposed 1.0 tpy chloroprene maintenance vent limit from its neoprene processes.[56]

iv. PRDs

P&R I currently regulates PRDs through equipment leak provisions that are applied only after the pressure release event 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) to ensure they are properly reseated and not leaking after a PRD release occurs; however, these provisions do not apply to an emissions release from a PRD (see section III.D.2 of this preamble for more detail). While we are not aware of PRD releases occurring from the Neoprene Production source category, we are concerned that allowing them could compound already unacceptable risk. Thus, while the EPA is proposing to set work practice standards for PRD releases (see section III.D.2 of the preamble), given the high potential risk posed by chloroprene from PRD releases, we are also proposing at 40 CFR 63.165(e)(3)(v)(D) (by way of proposed 40 CFR 63.502(a)(2)) that any release event from PRDs in chloroprene service in the Neoprene Production source category facilities is a violation of the standard. This is the same provision that we finalized in the MON for PRDs in EtO service (see 40 CFR 63.2493(d)(4)(iv)), and that we are proposing for HON PRDs in EtO service, to ensure that these emissions are controlled and do not bypass controls.

v. Summary

For process vents, storage vessels, wastewater, maintenance vents, and PRDs, we considered the control options described above for reducing chloroprene risk from the Neoprene Production source category. To reduce risk from the source category to an acceptable level, we propose to require control of chloroprene for: (1) Process vents, (2) storage vessels, and (3) wastewater ''in chloroprene service'' (defined in this proposal). We are also proposing requirements to reduce chloroprene emissions from maintenance vents and PRDs. For process vents and storage vessels in chloroprene service, we are proposing owners and operators reduce emissions of chloroprene by venting emissions through a closed-vent system to a control device that reduces chloroprene by greater than or equal to 99.9 percent by weight, to a concentration less than 1 ppmv for each process vent and storage vessel, or to less than 5 lb/yr for all combined process vents. For wastewater in chloroprene service, we are proposing to revise the Group 1 wastewater stream threshold for sources to include wastewater streams in chloroprene service. For maintenance vents, we are proposing a requirement that owners and operators cannot release more than 1.0 ton of chloroprene from all maintenance vents combined in any consecutive 12-month period. For PRDs in chloroprene service, we are proposing that any atmospheric PRD release is a violation of the standard. Lastly, in order to ensure reductions in emissions and risk given that many sources within the neoprene process are fugitive in nature, we are also proposing a facility-wide chloroprene emissions cap for all neoprene production emission sources as a backstop. After application of the proposed controls to address unacceptable risk for process vents, storage vessels, wastewater, maintenance vents, and PRDs, and including remaining sources of emissions in the emissions inventory (*e.g.,* equipment leaks), we are proposing at 40 CFR 63.483(a)(10) a facility-wide chloroprene emissions cap of 3.8 tpy in any consecutive 12-month period for all neoprene production emission sources.

In all cases, we are proposing that if information exists that suggests chloroprene could be present in these processes, then the emission source is considered to be in chloroprene service unless sampling and analysis is performed to demonstrate that the

[56] From reported Neoprene Unit Condition XVII permitted emissions.

emission source does not meet the definition of being in chloroprene service. We are proposing sampling and analysis procedures at 40 CFR 63.509. Examples of information that could suggest chloroprene is present in a process stream include calculations based on safety data sheets, material balances, process stoichiometry, or previous test results provided that the results are still relevant to the current operating conditions.

Based on the proposed applicability thresholds, we expect that only one facility (*i.e.,* the neoprene production facility) will be affected by the proposed chloroprene-specific standards, and we anticipate that this facility will be subject to the process vent, storage vessel, wastewater, maintenance vent, and PRD provisions.

3. Determination of Risk Acceptability After Proposed Emission Reductions

As noted in sections II.A.1 and II.E of this preamble and in the 1989 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 38044, 38045/col. 1, September 14, 1989). In the 1989 Benzene NESHAP, the EPA explained that ''[i]n establishing a presumption for MIR, rather than a rigid line for acceptability, the Agency intends to weigh it with a series of other health measures and factors'' (*id.,* at 38045/col. 3). ''As risks increase above this benchmark, they become presumptively less acceptable under section 112, and would be weighed with the other health risk measures and information in making an overall judgement on acceptability'' (*id.*).

a. SOCMI

Presented in the Table 4 of this preamble are the levels of emissions control proposed to address unacceptable risks for the SOCMI source category. This includes reducing emissions of EtO for HON processes and requiring more stringent controls for process vents, storage vessels, equipment leaks, heat exchange systems, wastewater, maintenance vents, flares, and PRDs without considering costs.

TABLE 4—NATIONWIDE ETO RISK IMPACT CONTROL OPTIONS FOR THE SOCMI SOURCE CATEGORY

Emission source	Description of proposed option	Percent reduction of EtO emissions
Process Vent Controls [1]	Control emissions through a closed-vent system to a non-flare control device that reduces EtO by greater than or equal to 99.9 percent by weight, to a concentration less than 1 ppmv for each process vent, or to less than 5 lb/yr for all combined process vents.	99.9 percent.
Storage Vessel Controls [1]	Control emissions through a closed-vent system to a non-flare control device that reduces EtO by greater than or equal to 99.9 percent by weight or to a concentration less than 1 ppmv.	99.9 percent.
Equipment Leak Controls	Monthly M21 monitoring of valves and connectors with a 100 ppm leak definition and monthly monitoring of pumps at 500 ppm leak definition without skip periods or delay of repair for these pieces of equipment that are in EtO service.	70–74 percent.
Heat Exchange Systems Controls	Weekly monitoring for leaks using the Modified El Paso Method and repair of leaks required no later than 15 days after date of weekly sampling occurs.	93 percent.
Wastewater Controls	Control all wastewater with a total annual average concentration of EtO greater than or equal to 1 ppmw at any flow rate as if it were Group 1 wastewater.	98 percent.
Maintenance Vent Emission Cap	1.0 tpy limit	Proposing to limit to existing level in emissions inventory.
Flare Load Limit	20 tpy limit on amount of EtO that could be sent to a flare	Site specific and would likely require two facilities to use a 99.9 percent control rather than a flare achieving 98 percent.
PRD releases	Work practice standards make atmospheric releases from PRDs in EtO service a violation from the standard.	Assumed 99.9 percent control, as it would be controlled as a process vent.

[1] Flares may also be used up to the flare load limit, though we do not expect this to occur given facilities would need to meet these more stringent control requirements after reaching the 20 tpy load limit.

For the SOCMI source category, after implementation of the proposed controls to address unacceptable risks, the MIR is reduced to 100-in-1 million (down from 2,000-in-1 million) with no facilities or populations exposed to risk levels greater than 100-in-1 million. The total population exposed to risk levels greater than or equal to 1-in-1 million living within 50 km (~31 miles) of a facility would be reduced from 7.2 million people to 5.7 million people. The total estimated cancer incidence of 2 drops to 0.4 excess cancer cases per year. The maximum modeled chronic noncancer TOSHI for the source category remains unchanged. It is estimated to be 2 (for respiratory effects) at two different facilities (from maleic anhydride emissions at one facility and chlorine emissions at another facility) with approximately 83 people estimated to be exposed to a TOSHI greater than 1. The estimated worst-case off-site acute exposures to emissions from the SOCMI source category also remain unchanged, with a maximum modeled acute HQ of 3 based on the RELs for chlorine and acrolein. Table 5 of this preamble summarizes the reduction in cancer risks based on the proposed controls.

TABLE 5—CANCER RISKS AFTER IMPLEMENTATION OF PROPOSED CONTROL FOR THE SOCMI SOURCE CATEGORY

Control scenario	MIR (x-in-1 million)	Population (≥1-in-1 million)	Population (>100-in-1 million)	Cancer incidence
Pre-Control Baseline	2,000	7,200,000	87,000	2
Post-Control	100	5,700,000	0	0.4

As noted earlier in this section, the EPA considers an MIR of ''approximately 1-in-10 thousand'' (*i.e.,* 100-in-1 million) to be the presumptive limit of acceptability (54 FR 38045, September 14, 1989) and the proposed controls lower the MIR to 100-in-1 million. This is a significant reduction from the pre-control MIR of 2,000-in-1 million. For noncancer effects, the EPA has not established under section 112 of the CAA a numerical range for risk acceptability as it has with carcinogens, nor has it determined that there is a bright line above which acceptability is denied. However, the Agency has established that, as exposure increases above a reference level (as indicated by a HQ or TOSHI greater than 1), confidence that the public will not experience adverse health effects decreases and the likelihood that an effect will occur increases.

In considering the potential implications of HIs above 1 (and equal to 2) for chlorine and maleic anhydride emissions, we note the basis and development of the underlying noncancer health benchmarks. Both chlorine and maleic anhydride are portal of entry irritants that, with sufficient exposure, act as potent irritants of the eyes and respiratory tract. Chronic exposure in human workers has been associated with airflow obstruction and asthma-like attacks, indicating a potential for people with asthma to have greater sensitivity to effects of these pollutants. The health benchmarks for chlorine and maleic anhydride represent exposure levels at (and below) which there is not likely to be appreciable risk of deleterious effects over a lifetime exposure, including for sensitive groups; however, the EPA has not estimated an exposure level at and above which an appreciable risk of deleterious effects would be expected.

In the case of chlorine, the sensitive effect on which the benchmark is based is an increased risk of nasal lesions. The chronic exposure level at which this effect, which was observed in an experimental animal study, is estimated is 0.004 mg/m^3.[57] [58] In the case of maleic anhydride, the sensitive effect is the occurrence of mild hyperplasia in the nasal epithelium.[59] [60] The chronic exposure level at which this effect, which was observed in several experimental animal studies, is estimated is 0.021 mg/m^3. To derive the chronic health benchmarks, both of these human equivalent exposure values were divided by 30 to account for the potential for people to be more sensitive than animals and for some population groups, such as people with asthma, to be more sensitive than the general population.

For both chlorine and maleic hydride, we note the small size of the HI (2) in relation to the total uncertainty factor of 30 used in derivation of both health benchmarks. In so doing, we also note a somewhat reduced confidence in a conclusion that exposure at these levels is without appreciable risk due to uncertainty, particularly for sensitive populations. Finally, we note that the population exposed to a TOSHI greater than 1 is relatively small (83 people).

Therefore, considering all health information, including risk estimation uncertainty, the EPA proposes that the resulting risks after implementation of the proposed controls for the SOCMI source category detailed in Section III.B.2.a. would be acceptable. We solicit comment on all the proposed control requirements to reduce risk to an acceptable level for the SOCMI source category.

b. Neoprene Production

Presented in Table 6 of this preamble are the levels of emissions control proposed to address unacceptable risks for the Neoprene Production source category. This includes emission reductions of chloroprene from process vents, storage vessels, wastewater, maintenance vents, and PRDs without considering costs, as well as a facility-wide emissions cap for chloroprene from all Neoprene Production emission sources.

TABLE 6—NATIONWIDE CHLOROPRENE RISK IMPACT CONTROL OPTIONS FOR THE NEOPRENE PRODUCTION SOURCE CATEGORY

Emission source	Description of proposed option	Percent reduction of chloroprene emissions
Process Vent Controls	Control emissions through a closed-vent system to a non-flare control device that reduces chloroprene by greater than or equal to 99.9 percent by weight, to a concentration less than 1 ppmv for each process vent, or to less than 5 lb/yr for all combined process vents. This includes also capturing and controlling emissions from opening of the polymer reactors and strainers.	99.9 percent.
Storage Vessel Controls	Control emissions through a closed-vent system to a non-flare control device that reduces chloroprene by greater than or equal to 99.9 percent by weight or to a concentration less than 1 ppmv. This includes also capturing and controlling emissions from opening and/or degassing of the unstripped resin emulsion tanks.	99.9 percent.

[57] Agency for Toxic Substances and Disease Registry (ATSDR). 2010. Toxicological profile for Chlorine. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

[58] Klonne DR, Ulrich CE, Riley MG, et al. 1987. One-year inhalation toxicity study of chlorine in Rhesus monkeys (Macaca mulatta). Fundam Appl Toxicol 9:557–572.

[59] Office of Environmental Health Hazard Assessment (OEHHA). 2008. Technical Supporting Document for Noncancer RELs, Appendix D3.

[60] Short RD, Minor JL, Winston JM, Seifter J, and Lee C. 1978. Inhalation of ethylene dibromide during gestation by rats and mice. Toxicol. Appl. Pharmacol. 46:173–182.

TABLE 6—NATIONWIDE CHLOROPRENE RISK IMPACT CONTROL OPTIONS FOR THE NEOPRENE PRODUCTION SOURCE CATEGORY—Continued

Emission source	Description of proposed option	Percent reduction of chloroprene emissions
Wastewater Controls	Control all wastewater with a total annual average concentration of chloroprene greater than or equal to 10 ppmw at any flow rate as if it were Group 1 wastewater.	93 percent.
Maintenance Vent Emission Cap	1.0 tpy limit	Proposing to limit to existing level in emissions inventory.
PRD releases	Work practice standards make atmospheric releases from PRDs in chloroprene service a violation from the standard.	None were reported in emissions inventory, proposing standard to ensure this remains the case.
Facility-wide emissions cap for chloroprene from all Neoprene Production emission sources.	3.8 tpy limit, which is a backstop to ensure reductions in emissions and risk given that many sources within the neoprene process are fugitive.	79 percent.

For the Neoprene Production source category, after implementation of the proposed controls to address unacceptable risks, the MIR is reduced to 100-in-1 million (down from 500-in-1 million) with zero people exposed to risk levels greater than 100-in-1 million. The total population exposed to risk levels greater than or equal to 1-in-1 million living within 50 km (~31 miles) of the facility would be reduced from 690,000 people to 48,000 people. The total estimated cancer incidence of 0.05 drops to 0.008 excess cancer cases per year. Table 7 of this preamble summarizes the reduction in cancer risks based on the proposed controls.

TABLE 7—NATIONWIDE RISK IMPACTS AFTER IMPLEMENTATION OF PROPOSED CONTROLS FOR THE NEOPRENE PRODUCTION SOURCE CATEGORY

Control scenario	MIR (x-in-1 million)	Population (≥1-in-1 million)	Population (>100-in-1 million)	Cancer incidence
Pre-Control Baseline	500	690,000	2,100	0.05
Post-Control	100	48,000	0	0.008

Again, as noted earlier in this section, the EPA considers an MIR of ''approximately 1-in-10 thousand'' (*i.e.,* 100-in-1 million) to be the presumptive limit of acceptability (54 FR 38045, September 14, 1989) and the proposed controls lower the MIR to 100-in-1 million, a significant reduction in the pre-control MIR of 500-in-1 million. Therefore, after implementation of the proposed controls for the Neoprene Production source category detailed in Section III.B.2.a. and considering all health information, including risk estimation uncertainty, the EPA proposes that the resulting risks would be acceptable for the Neoprene Production source category. We solicit comment on all the proposed control requirements to reduce risk to an acceptable level for the source category.

4. Ample Margin of Safety Analysis

The second step in the residual risk decision framework is a determination of whether the emission standards proposed to achieve an acceptable risk level provide an ample margin of safety to protect public health, or whether more stringent emission standards would be required for this purpose. In making this determination, we considered the health risk and other health information considered in our acceptability determination, along with additional factors not considered in the risk acceptability step, 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 EtO emission reductions we estimated for the proposed control requirements to get the risks to an acceptable level for the SOCMI source category. For details on the assumptions and methodologies used in the costs and impacts analyses, see the technical documents titled, *Analysis of Control Options for Process Vents and Storage Vessels to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON; Analysis of Control Options for Equipment Leaks to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON; Analysis of Control Options for Heat Exchange Systems to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON; Analysis of Control Options for Wastewater Streams to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON;* and *Analysis of Control Options for Flares to Reduce Residual Risk of Ethylene Oxide in the SOCMI Source Category for Processes Subject to HON,* which are available in the docket for this rulemaking. We note that for two fugitive EtO emission sources (*i.e.,* equipment leaks and wastewater), emission reductions (and subsequent cost-effectiveness values for EtO) differ from reductions expected to occur from reported emissions inventories due to use of model plants, engineering assumptions made to estimate baseline emissions, and uncertainties in how fugitive emissions may have been calculated for reported inventories compared to our model plants analyses (and are documented in the aforementioned technology review memorandum).

TABLE 8—NATIONWIDE ETO EMISSION REDUCTIONS AND COST IMPACTS FOR CONTROL OPTIONS CONSIDERED FOR HON PROCESSES

Control option	Total capital investment (MM$)	Total annualized costs (MM$/yr)	EtO emission reductions (tpy)	Cost effectiveness ($/ton EtO)
A—Process Vent & Storage Vessel Controls	10.2	5.28	32.0	165,000
B—Equipment Leak Controls	0.18	3.53	42.3	83,500
C—Heat Exchange System Controls	0.043	0.19	6.06	31,400
D—Wastewater Controls	65.8	41.1	396	103,800
E—Maintenance Vent Emission Cap [1]	0.017	0.0027	0	N/A
F—Flare Load Limit	0.28	0.46	5.04	91,300
Total (A + B + C + D + E + F)	76.5	50.6	481	105,000

[1] We anticipate that all facilities with HON processes that use and emit EtO can already meet the proposed maintenance vent emissions limit without additional control, thus only minimal costs are included.

Table 9 of this preamble presents the summary of costs and chloroprene emission reductions we estimated for the proposed control options to get the risks to an acceptable level for the Neoprene Production source category. For details on the assumptions and methodologies used in the costs and impacts analyses, see the technical documents titled *Analysis of Control Options for Process Vents and Storage Vessels to Reduce Residual Risk of Chloroprene Emissions at P&R I Affected Sources Producing Neoprene;* and *Analysis of Control Options for Wastewater Streams to Reduce Residual Risk of Chloroprene From Neoprene Production Processes Subject to P&R I,* which are available in the docket for this rulemaking. We note that chloroprene emission reductions from wastewater (and subsequent cost-effectiveness values for chloroprene from wastewater) differ from reductions expected to occur from reported emissions inventories due to use of model plants, engineering assumptions made to estimate baseline emissions, and uncertainties in how fugitive emissions may have been calculated for reported inventories compared to our model plants analysis (and are documented in the aforementioned memorandum).

TABLE 9—NATIONWIDE CHLOROPRENE EMISSION REDUCTIONS AND COST IMPACTS FOR CONTROL OPTIONS CONSIDERED FOR P&R I PROCESSES PRODUCING NEOPRENE

Control option	Total capital investment (MM$)	Total annualized costs (MM$/yr)	Chloroprene emission reductions (tpy)	Cost effectiveness ($/ton chloroprene)
A—Process Vent, Storage Vessel, & Maintenance Vent Controls	10.1	2.80	11.3	247,800
B—Wastewater Controls	5.84	7.56	17.7	427,000
Total (A + B)	15.9	10.4	29.0	359,000

For the ample margin of safety analyses, we evaluated the cost and feasibility of available control technologies that could be applied to HON processes and neoprene production processes to reduce risks further, considering all of the health risks and other health information considered in the risk acceptability determination described above and the additional information that can be considered only in the ample margin of safety analysis (*i.e.,* costs and economic impacts of controls, technological feasibility, uncertainties, and other relevant factors). We note that the EPA previously made a determination that the standards for the SOCMI source category and Neoprene Production source category provide an ample margin of safety to protect public health, and that the most significant changes since that determination were the revised 2016 IRIS inhalation URE for EtO and new 2010 IRIS inhalation URE for chloroprene. As such, we focused our ample margin of safety analysis on cancer risk for these two pollutants since EtO, even after application of controls needed to get risks to an acceptable level, drives cancer risk and cancer incidence (*i.e.,* 60 percent of remaining cancer incidence is from EtO) for the SOCMI source category and almost all the remaining cancer risk and cancer incidence (*i.e.,* 99.995 percent of remaining cancer incidence) is from chloroprene for the Neoprene Production source category.

For the SOCMI source category, no other control options for EtO were identified beyond those proposed to reduce risks to an acceptable level. Furthermore, the proposed EtO controls for process vents, storage vessels, equipment leaks, heat exchange systems, wastewater, and PRDs to reduce risks to an acceptable level are far more stringent than other options we identified to control HAP generally (*i.e.,* see sections III.C and III.D of this preamble).

For chloroprene emissions from HON-subject sources, we identified control options for equipment leaks and maintenance activities in our review of these standards (see sections III.C.6 and III.D.4 of this preamble). These controls would likely reduce the cancer incidence and number of people exposed to risks greater than or equal to 1. However, the overall source category risk reductions would be relatively small. Only approximately 3 percent of the SOCMI source category cancer incidence after the proposed controls in section III.B.2 to reduce risks to an acceptable level is due to chloroprene emissions. Also, of the 5.7 million people with cancer risks greater than or equal to 1-in-1 million after the proposed controls to reduce risks to an

acceptable level, approximately 48,000 people (or 0.8 percent of the total) have risks greater than or equal to 1-in-1 million due to chloroprene emissions from the SOCMI source category. However, as described in sections III.C.6 and III.D.4, the options we evaluated for equipment leaks and maintenance activities beyond the standards currently in the HON (or that are being proposed for maintenance activities) are not cost-effective.

For the Neoprene Production source category, we did not identify control options for chloroprene emissions from process vents, storage vessels, wastewater, maintenance vents, and PRDs that reduced emissions beyond those proposed in section III.B.2 to reduce risks to an acceptable level. We also considered other potential sources of chloroprene, in particular heat exchange systems and equipment leaks. For heat exchange systems, no chloroprene emissions were reported in the emissions inventory from this source and as such, no risk reductions would be realized by requiring more stringent controls. For equipment leaks, additional control options were identified that could reduce risks further from this source and are discussed as part our technology review (see section III.C.6 of this preamble). The options would reduce chloroprene equipment leak emissions by 10–20 percent. Approximately 14 percent of the Neoprene Production source category cancer incidence after the proposed controls in section III.B.2 to reduce risks to an acceptable level is due to chloroprene emissions from equipment leaks. Also, of the 48,000 people with cancer risks greater than or equal to 1-in-1 million after the proposed controls to reduce risks to an acceptable level, approximately 16,000 people (or 34 percent of the total) have risks greater than or equal to 1-in-1 million due to chloroprene emissions from equipment leaks. Therefore, a 10–20 percent reduction in equipment leak emissions would reduce the cancer incidence by approximately 1 to 4 percent and the number of people with cancer risks greater than or equal to 1-in-1 million by approximately 2,000 to 3,000 people (3 to 7 percent of the total). However, as described in sections III.C and III.D, the options we evaluated for equipment leaks are not cost-effective.

In summary, based on our ample margin of safety analysis, we propose that controls to reduce EtO emissions at HON processes and chloroprene emissions at neoprene production processes to get risks to an acceptable level would also provide an ample margin of safety to protect public health. We also note the proposed changes to the flare requirements, proposed standards for dioxins/furans, and proposed standards to remove SSM exemptions (or provide alternative standards in limited instances) that are in this proposed action and that we are proposing under CAA sections 112(d)(2) and (3) will achieve additional reductions in emissions and further strengthen our conclusions that the standards continue to provide an ample margin of safety to protect public health for the SOCMI and Neoprene Production source categories.

5. Adverse Environmental Effects

Based on our screening assessment of environmental risk presented in section III.A.4 of this preamble, we did not identify any areas of concern with respect to environmental risk. Therefore, we have determined that HAP emissions from the source categories do not result in an adverse environmental effect, 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.

C. What are the results and proposed decisions based on our CAA section 112(d)(6) technology review and CAA section 111(b)(1)(B) NSPS reviews, and what are the rationale for those decisions?

In addition to the proposed EtO- and chloroprene-specific requirements discussed in section III.B.2 of this preamble, under CAA section 112(d)(6) we also evaluated developments in practices, processes, and control technologies for heat exchange systems, storage vessels, process vents, transfer racks, wastewater, and equipment leaks for processes subject to the HON, P&R I, and P&R II (see sections III.C.1 through III.C.6 of this preamble, respectively). Under CAA section 111(b)(1)(B), for the review of NSPS subpart VVa, we evaluated BSER for equipment leaks (see section III.C.6.b of this preamble); and for the review of NSPS subparts III, NNN, and RRR we evaluated BSER for process vents associated with air oxidation units, distillation operations, and reactor processes, respectively (see section III.C.3.b of this preamble). We analyzed costs and emissions reductions for each emission source (*e.g.,* process vents) by each rule. For NSPS, we determined cost-effectiveness, cost per ton of emissions reduced, on a VOC basis. For NESHAP, we determined cost-effectiveness on a HAP basis from the VOC emissions. We also evaluated fenceline monitoring as a development in practices considered under CAA section 112(d)(6) for the purposes of managing fugitive emissions from sources subject to the HON and P&R I (see section III.C.7 of this preamble).

1. Standards for 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 defined in HON and P&R I at 40 CFR 63.101 and 40 CFR 63.482 (which references 40 CFR 63.101) as any cooling tower system or once-through cooling water system (*e.g.,* river or pond water). A heat exchange system can include more than one heat exchanger and can include an entire recirculating or once-through cooling system. However, the HON and P&R I do not describe a heat exchanger, closed-loop recirculation system, or once-through cooling system as part of its definition of ''heat exchange system''. Therefore, we are proposing to revise the definition of ''heat exchange system'' at 40 CFR 63.101 and 40 CFR 63.482 (which references 40 CFR 63.101) to mean 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). This is consistent with the definition of ''heat exchange system'' used in the MON. We are also

proposing (as is done in the MON) to make clear in this definition that: (1) For closed-loop recirculation systems, the heat exchange system consists of a cooling tower, all CMPU heat exchangers that are in organic HAP service (for HON) or all EPPU heat exchangers that are in organic HAP service (for P&R I), serviced by that cooling tower, and all water lines to and from these process unit heat exchangers.; (2) for once-through systems, the heat exchange system consists of all heat exchangers that are in organic HAP service, servicing an individual CMPU (for HON) or EPPU (for P&R I) and all water lines to and from these heat exchangers; (3) 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; and (4) intentional direct contact with process fluids results in the formation of a wastewater. This proposed definition would also apply to heat exchange systems in ethylene oxide service as described in section III.B.2.iii of this preamble.

The HON and P&R I include 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 HON and P&R I MACT standards for heat exchange systems allow the use of any method listed in 40 CFR part 136 to be used to sample cooling water for leaks for the HAP listed in Table 4 to subpart F (for HON) or Table 5 to 40 CFR 63, subpart U (for P&R I) (recirculating systems) and Table 9 to subpart G (for HON) or Table 5 to 40 CFR 63, subpart U (for P&R I) (once-through systems) (and other representative substances such as TOC or VOC that can indicate the presence of a leak can also be used). 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 HON and P&R I allow 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 HON and P&R I initially require 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 [61] to monitor for leaks. The Modified El Paso Method, which is included in the MON, EMACT standards, and the Petroleum Refinery Sector rule, was identified in our review of the RACT/BACT/LAER clearinghouse database. It is also required by the Texas Commission on Environmental Quality (TCEQ) for facilities complying with their highly reactive volatile organic compound (HRVOC) rule (*i.e.,* 30 Texas Administrative Code (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 HON and P&R I 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 HON and P&R I facilities, including an assessment of appropriate leak definitions and monitoring frequencies.

In order to identify an appropriate Modified El Paso Method leak definition for HON-subject facilities, we identified four rules, TCEQ's HRVOC rule, the MON, the EMACT standards, and the Petroleum Refinery Sector rule, all 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.

The TCEQ's HRVOC rule, the MON, the EMACT standards, and the Petroleum Refinery Sector 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 MON, the EMACT standards, or 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 as a result of total strippable hydrocarbon (as methane) in the stripping gas above 6.1 ppmv compared to leaks identified in the CAA section 114 sampling data as a result of other actionable leak definitions, 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

[61] 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.

current monitoring frequencies that HON and P&R I facilities are subject to, along with frequencies for the TCEQ's HRVOC rule, the MON, the EMACT standards, and the Petroleum Refinery Sector 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 leak emissions in their heat exchange system compliance data. 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 the HON and P&R I when 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 HON and P&R I 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 207 HON facilities and 19 P&R I facilities (10 of which are collocated with HON 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 at HON facilities (including 10 P&R I facilities collocated with HON facilities) 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. Table 11 of this preamble presents the nationwide impacts for requiring owners or operators at P&R I facilities (not collocated with HON facilities) 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 document titled *Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems Located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Heat Exchange Systems that are Associated with Processes Subject to Group I Polymers and Resins NESHAP; and Control Option Impacts for Heat Exchange Systems that are Associated with Processes Subject to Group II Polymers and Resins NESHAP,* 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 HON and P&R I for heat exchange systems pursuant to CAA section 112(d)(6). We are proposing at 40 CFR 63.104(g)(4) [62] 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. Owners and operators would be required to repair the leak to reduce the concentration or mass emissions rate to below the leak action level as soon as practicable, but no later than 45 days after identifying the leak. We are also proposing at 40 CFR 63.104(j)(3) 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 63.104(h) and (i) that repair include re-monitoring at the monitoring location where a leak is identified to ensure that any leaks found are fixed. 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 because owners and operators of smaller heat exchange systems would be disproportionally affected and forced to repair leaks with a much lower potential HAP emissions rate than owners and operators of heat exchange systems with larger recirculation rate systems. Finally, we are proposing at 40 CFR 63.104(l) that the leak monitoring requirements for heat exchange systems at 40 CFR 63.104(b) may be used in limited instances, instead of using the Modified El Paso Method to monitor for leaks. We still maintain that the Modified El Paso Method is the preferred method to monitor for leaks in heat exchange systems and are proposing that the requirements of 40 CFR 63.104(b) may only be used if 99 percent by weight or more of all the organic compounds that could potentially leak into the cooling water have a Henry's Law Constant less than 5.0E–6 atmospheres per mole per cubic meter (atm-m^3/mol) at 25° Celsius. We selected this threshold based on a review of Henry's Law Constants for the HAP listed in Table 4 to subpart F of 40

[62] We note that each of the HON citations mentioned in this paragraph of this preamble are also applicable to P&R I facilities pursuant to 40 CFR 63.502(n). In order for these proposed HON citations to properly apply to P&R I facilities, we are proposing substitution rule text at 40 CFR 63.502(n)(7).

CFR part 63, as well as the water-soluble organic compounds listed in a recent alternative monitoring request from a MON facility.[63] Henry's Law Constants are available from the EPA at *https://comptox.epa.gov/dashboard/*. Examples of HAP that have a Henry's Law Constant of less than 5.0E–6 atm-m^3/mol at 25° Celsius are aniline, 2-chloroacetophenone, diethylene glycol diethyl ether, diethylene glycol dimethyl ether, dimethyl sulfate, 2,4-dinitrotoluene, 1,4-dioxane, ethylene glycol monoethyl ether acetate, ethylene glycol monomethyl ether acetate, methanol, and toluidine. Many of these HAP also have very high boiling points, with most above 300 Fahrenheit, which means they will generally stay in the cooling water and not be emitted to the atmosphere. We solicit comment on all of the proposed requirements related to heat exchange systems.

TABLE 10—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACT FOR REQUIRING THE MODIFIED EL PASO METHOD FOR HEAT EXCHANGE SYSTEMS AT HON FACILITIES

Control option	Total capital investment ($)	Total annualized costs w/o credits ($/yr)	VOC emission table reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness w/o recovery credits ($/ton)	Total annualized costs with recovery credits ($/yr)	HAP cost effectiveness with recovery credits ($/ton)
1	770,000	228,000	934	93	2,440	(612,700)	(6,560)

TABLE 11—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACT FOR REQUIRING THE MODIFIED EL PASO METHOD FOR HEAT EXCHANGE SYSTEMS AT P&R I FACILITIES

[Not collocated with HON facilities]

Control option	Total capital investment ($)	Total annualized costs w/o credits ($/yr)	VOC emission reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness w/o recovery credits ($/ton)	Total annualized costs with recovery credits ($/yr)	HAP cost effectiveness with recovery credits ($/ton)
1	48,300	9,900	33	3	3,050	(19,320)	(5,940)

2. Standards for Storage Vessels

Storage vessels 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. Most HON, P&R I, and P&R II storage vessels are designed for operation at atmospheric or near atmospheric pressures; pressure vessels are used to store compressed gases and liquefied gases. Atmospheric storage vessels are typically cylindrical with a vertical orientation, and they are constructed with either a fixed roof or a floating roof. Some, generally small, atmospheric storage vessels are oriented horizontally. Pressure vessels are either spherical or horizontal cylinders.

The HON requires owners and operators control emissions from storage vessels with capacities between 75 m^3 and 151 m^3 and a MTVP greater than or equal to 13.1 kPa, and storage vessels with capacities greater than or equal to 151 m^3 and a MTVP greater than or equal to 5.2 kPa. Storage vessels meeting this criteria are considered Group 1 storage vessels. Owners and operators of HON Group 1 storage vessels storing a liquid with a MTVP of total organic HAP less than 76.6 kPa are required to reduce emissions of organic HAP by 95 percent (or 90 percent if the storage vessel was installed on or before December 31, 1992) utilizing a closed vent system and control device, or reduce organic HAP emissions either by utilizing an IFR, an EFR, or by routing the emissions to a process or a fuel gas system, or vapor balancing. Owners and operators of HON Group 1 storage vessels storing a liquid with a MTVP of total organic HAP greater than or equal to 76.6 kPa are required to reduce emissions of organic HAP by 95 percent (or 90 percent if the storage vessel was installed on or before December 31, 1992) utilizing a closed vent system and control device, or reduce organic HAP emissions by routing the emissions to a process or a fuel gas system, or vapor balancing. In general, HON storage vessels that do not meet the MTVP and capacity thresholds described above are considered Group 2 storage vessels and are not required to apply any additional emission controls provided they remain under Group 1 thresholds; however, they are subject to certain monitoring, reporting, and recordkeeping requirements to ensure that they were correctly determined to be Group 2 and that they remain Group 2. Generally, the P&R I standards for storage vessels refer to the provisions in the HON. As such, owners and operators of Group 1 storage vessels subject to P&R I are required to control these vessels as prescribed in the HON.

The P&R II standards for storage tanks (P&R II uses the term ''storage tank'' in lieu of ''storage vessel'' like the HON and P&R I) do not specify any sort of stratification into groups. P&R II defines ''storage tank'' to mean tank or other vessel that is used to store liquids that contain one or more HAP compounds.

[63] In May 2021, EPA Region 4 received a request from Eastman Chemical Company to perform alternative monitoring instead of the Modified El Paso Method to monitor for leaks in Eastman's Tennessee Operations heat exchange systems, which primarily have cooling water containing soluble HAP with a high boiling point. Eastman specifically identified two HAP, 1,4-dioxane and methanol, which do not readily strip out of water using the Modified El Paso Method. Eastman's application for alternative monitoring included experimental data showing that the Modified El Paso Method would likely not identify a leak of these HAP in heat exchange system cooling water. Eastman conducted Modified El Paso Method monitoring under controlled scenarios to determine how much methanol and 1,4-dioxane would be detected. The scenarios included solutions of water and either methanol or 1,4-dioxane at concentrations of 1 part per million by weight (ppmw), 20 ppmw, and 100 ppmw (as measured using water sampling methods allowed previously in the MON). The Modified El Paso Method did not detect any methanol or 1,4-dioxane from the 1 ppmw and 20 ppmw solutions (*i.e.,* methanol and 1,4-dioxane did not strip out of the water in detectable amounts). The Modified El Paso Method detected very little HAP from the 100 ppmw solutions, with a maximum of only 0.17 percent of the 1,4-dioxane stripping out and being detected.

As previously mentioned, process vents, storage tanks, and wastewater systems combined are regulated according to a production-based emission rate (*e.g.,* pounds HAP per million pounds BLR or WSR produced) standard for existing sources in both BLR (130 pounds) and WSR (10 pounds). For new sources, BLR requires 98 percent reduction or an overall limit of 5,000 pounds of HAP per year. New WSR sources are limited to 7 pounds of HAP per million pounds WSR produced.

As part of our technology review for HON and P&R I storage vessels, we identified the following emission reduction options: (1) Revising the capacity and MTVP thresholds of the HON and P&R I to reflect the MON existing source threshold which requires existing storage vessels between 38 m^3 and 151 m^3 with a vapor pressure greater than or equal to 6.9 kPa to reduce emissions of organic HAP by 95 percent utilizing a closed vent system and control device, or reduce organic HAP emissions either by utilizing an IFR, an EFR, or by routing the emissions to a process or a fuel gas system, or vapor balancing; (2) in addition to requirements specified in option 1, requiring upgraded deck fittings [64] and controls for guidepoles for all storage vessels equipped with an IFR as already required in 40 CR 63, subpart WW; and (3) in addition to requirements specified in options 1 and 2, requiring the conversion of EFRs to IFRs through use of geodesic domes. We did not identify any control options for storage tanks subject to P&R II.

We identified option 1 as a technologically feasible development in practices, processes, and control technologies for storage vessels used at HON and P&R I facilities because it reflects requirements for similar storage vessels that are located at chemical manufacturing facilities subject to the MON. Option 2 is an improvement in practices because these upgraded deck fittings and guidepole controls have been required by other regulatory agencies and other EPA regulatory action (*e.g.,* Petroleum Refinery Sector rulemaking) since promulgation of the HON and P&R I and are being used by some of the sources covered by the SOCMI source category. Finally, we consider option 3 to be a development in control technology because we found that some storage vessels with EFRs have installed geodesic domes since promulgation of the HON and P&R I.

We used information about storage vessel capacity, design, and stored materials that industry provided to the EPA in response to our CAA section 114 request (see section II.C of this preamble) to evaluate the impacts of all three of the options presented. We identified eight HON storage vessels and two P&R I storage vessels from our CAA section 114 request that would be impacted by option 1; extrapolating this data to all 207 HON facilities and 19 P&R I facilities (10 of which are collocated with HON facilities), we estimated costs and emissions reductions for 63 HON storage vessels and 4 P&R I storage vessels that would be impacted by option 1. This same distribution would apply to option 2. For option 3, we identified five HON EFR storage vessels and zero P&R I EFR storage vessels from our CAA section 114 request that would be impacted; extrapolating this data to all 207 HON facilities and 19 P&R I facilities (10 of which are collocated with HON facilities) we estimated costs and emissions reductions for 159 HON EFR storage vessels and 5 P&R I EFR storage vessels [65] that would be impacted by option 3.

Table 12 of this preamble presents the nationwide impacts for the three options considered for HON facilities (including 10 P&R I facilities collocated with HON facilities). Table 13 of this preamble presents the nationwide impacts for the three options considered for P&R I facilities (not collocated with HON facilities). See the document titled *Clean Air Act Section 112(d)(6) Technology Review for Storage Vessels Located in the SOCMI Source Category that are Associated with Processes Subject to HON, Storage Vessels Associated with Processes Subject to Group I Polymers and Resins NESHAP, and Storage Vessels Associated with Processes Subject to Group II Polymers and Resins NESHAP,* which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in this analysis, including the calculations we used to account for additional HON and P&R I facilities that did not receive a CAA section 114 request.

We determined that option 2 (which includes option 1) is cost effective and we are proposing, pursuant to CAA section 112(d)(6), to revise the Group 1 storage capacity criterion (for HON and P&R I storage vessels at existing sources) from between 75 m^3 and 151 m^3 to between 38 m^3 and 151 m^3 (see proposed Table 5 to subpart G), and require upgraded deck fittings and controls for guidepoles for all storage vessels equipped with an IFR as already required in 40 CR 63, subpart WW (see proposed 40 CFR 63.119(b)(5)(ix), (x), (xi), and (xii)). Considering the emissions reductions and high incremental cost effectiveness, we determined that storage vessel option 3 is not cost effective and are not proposing to revise the HON and P&R I to reflect the requirements of this option pursuant to CAA section 112(d)(6). We solicit comment on the proposed revisions for storage vessels.

TABLE 12—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR STORAGE VESSELS AT HON FACILITIES

Control option	Total capital investment ($)	Total annualized costs ($/yr)	VOC emission reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness ($/ton)	HAP incremental cost effectiveness (from Option 1) ($/ton)
1	1,727,000	327,400	58.0	40.6	8,070	.....
2	2,191,500	415,500	68.2	47.7	8,710	12,400
3	28,916,200	4,065,700	84.3	59.0	68,880	N/A

[64] Require all openings in an IFR (except those for automatic bleeder vents (vacuum breaker vents), rim space vents, leg sleeves, and deck drains) be equipped with a deck cover; and the deck cover would be required to be equipped with a gasket between the cover and the deck.

[65] Although no EFR tanks were reported for P&R I as part of our CAA section 114 request, we assumed five P&R I EFR storage vessels based on the number of HON average EFR storage vessels per HON CMPU that were reported.

TABLE 13—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR STORAGE VESSELS AT P&R I FACILITIES

[Not collocated with HON facilities]

Control option	Total capital investment ($)	Total annualized costs ($/yr)	VOC emission reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness ($/ton)	HAP incremental cost effectiveness (from Option 1) ($/ton)
1	109,000	20,700	3.7	2.6	7,960	.....
2	131,000	24,800	4.1	2.9	8,550	13,700
3	912,200	128,300	2.7	1.9	67,500	N/A

3. Standards for Process Vents

A process vent is a gas stream that is discharged during the operation of a particular unit operation (*e.g.,* separation processes, purification processes, mixing processes, reaction processes). The gas stream(s) may be routed to other unit operations for additional processing (*e.g.,* a gas stream from a reactor that is routed to a distillation column for separation of products), sent to one or more recovery devices, sent to a process vent header collection system (*e.g.,* blowdown system) and APCD (*e.g.,* flare, thermal oxidizer, carbon adsorber), and/or vented to the atmosphere. Process vents may be generated from continuous and/or batch operations,[66] as well as from other intermittent types of operations (*e.g.,* maintenance operations). If process vents are required to be controlled prior to discharge to the atmosphere to meet an applicable emissions standard, then they are typically collected and routed to an APCD through a closed vent system.

NSPS subparts III, NNN, and RRR regulate gas streams from air oxidation reactors, distillation columns, and other reactor processes, respectively. Importantly, the NSPS subparts III, NNN, and RRR formed the basis for the HON process vent MACT standards in that to be considered a HON process vent, some or all of the gas stream must originate as a continuous flow from an air oxidation reactor, distillation unit, or other reactor process during operation of a CMPU. P&R I regulates batch front-end process vents, continuous front-end process vents, and aggregate batch vent streams from condensers, distillation units, reactors, or other unit operations within an EPPU. Generally, process vents subject to NSPS subparts III, NNN, or RRR, or the HON and/or P&R I are grouped based on the flow rate, HAP concentration, and a TRE index value.[67] P&R II defines a process vent as a point of emission from a unit operation, such as condenser vents, vacuum pumps, steam ejectors and atmospheric vents from reactors and other process vessels; and no further stratification into groups for applicability is specified.

The results of our CAA section 112(d)(6) technology review for process vents associated with HON, P&R I, and P&R II processes are discussed in section III.C.3.a of this preamble. The results of our CAA 111(b)(1)(B) review for process vents subject to NSPS subparts III, NNN, or RRR are discussed in section III.C.3.b of this preamble.

a. HON, P&R I, and P&R II

As previously mentioned, the HON standards divide process vents into Group 1 process vents, which require controls, and Group 2 process vents, which generally do not require controls provided they remain below Group 1 thresholds. A Group 1 HON process vent is a process vent for which the vent stream flow rate is greater than or equal to 0.005 scmm, the total organic HAP concentration is greater than or equal to 50 ppmv, and the TRE index value is less than or equal to 1.0 (according to the determination procedures at 40 CFR 63.115). The TRE index value is a measure of the supplemental total resource requirement per unit VOC (or HAP) reduction. It takes into account all the resources which are expected to be used in VOC (or HAP) control by thermal oxidation and provides a dimensionless measure of resource burden based on cost effectiveness. Resources include supplemental natural gas, labor, and electricity. Additionally, if the off-gas contains halogenated compounds, resources will also include caustic and scrubbing and quench makeup water. For the HON and P&R I, the TRE index value is derived from the cost effectiveness associated with HAP control by a flare or thermal oxidation, and is a function of vent stream flowrate, vent stream net heating value, hourly emissions, and a set of coefficients. The TRE index value was first introduced in an EPA document titled: *Guideline Series for Control of Volatile Organic Compound (VOC) Emissions from Air Oxidation Processes in Synthetic Organic Chemical Manufacturing Industry (SOCMI)* (see EPA–450/3–84–015, December 1984). The EPA incorporated the TRE concept into the original HON (see 59 FR 19468, April 22, 1994) and the original P&R I rulemaking (see 61 FR 46906, September 5, 1996). The TRE index value is used in 40 CFR 63 subpart G and 40 CFR 63 subpart U as an alternative mode of compliance for process vent regulations. The TRE index value can also trigger monitoring, recordkeeping, and reporting requirements. In general, as previously mentioned for the HON and P&R I, continuous process vents with a TRE index value equal to or less than 1.0 are required to be controlled. For additional details regarding the TRE index value (including the equation and coefficients used to calculate the TRE index value for the HON and P&R I), see the document titled *Clean Air Act Section 112(d)(6) Technology Review for Continuous Process Vents Located in the SOCMI Source Category that are Associated with Processes Subject to HON, Continuous Front-end and Batch Front-end Process Vents Associated with Processes Subject to Group I Polymers and Resins NESHAP, and Process Vents Associated with Processes Subject to Group II Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

The HON standards require uncontrolled Group 1 process vents to reduce total organic HAP[68] emissions by 98 percent by weight by venting emissions through a closed vent system to any combination of control devices or by venting emissions through a closed

[66] P&R I and P&R II regulate process vents from both continuous and batch operations. The HON and NSPS subparts III, NNN, and RRR only regulate process vents if some, or all, of the gas stream originates as a continuous flow.

[67] TRE is discussed in more detail below in section III.C.3.a of this preamble (for NESHAP) and section III.C.3.b of this preamble (for NSPS).

[68] For HON, organic HAP refers to chemicals listed in Table 2 to NESHAP subpart F.

vent system to a flare.[69] The P&R I standards for continuous front-end process vents use the same Group 1 flow rate, HAP concentration, and TRE index value threshold criterion as the HON; refer to the same provisions in the HON for group determination (*i.e.,* owners and operators of continuous front-end process vents subject to P&R I determine whether control is required based on the flow rate, HAP concentration, and TRE index value using the same HON determination procedures at 40 CFR 63.115); and require the same level as control as the HON (*i.e.,* reduce total organic HAP[70] emissions by 98 percent by weight by venting emissions through a closed vent system to any combination of control devices or by venting emissions through a closed vent system to a flare).[71]

The P&R I standards do not refer to the HON for batch front-end process vents. The P&R I group determination for batch front-end vents is based on annual HAP emissions and annual average batch vent flow rate. Group 1 batch front-end process vent means a batch front-end process vent releasing annual organic HAP emissions greater than or equal to 11,800 kg/yr (26,014 lb/yr) and with a cutoff flow rate greater than or equal to the annual average batch vent flow rate.[72] The cutoff flow rate is calculated in accordance with 40 CFR 63.488(f). Annual organic HAP emissions and annual average batch vent flow rate are determined at the exit of the batch unit operation, as described in 40 CFR 63.488(a)(2). Annual organic HAP emissions are determined as specified in 40 CFR 63.488(b), and annual average batch vent flow rate is determined as specified in 40 CFR 63.488(e).

The P&R II standards for process vents do not specify any sort of stratification into groups. However, the rule does have different performance testing requirements depending on whether the process vent is part of a continuous process[73] or if flow of gaseous emissions is intermittent. As previously mentioned, process vents, storage tanks, and wastewater systems combined are regulated according to a production-based emission rate (*e.g.,* pounds HAP per million pounds BLR or WSR produced) standard for existing sources in both BLR (130 pounds) and WSR (10 pounds). For new sources, BLR requires 98 percent reduction or an overall limit of 5,000 pounds of HAP per year. New WSR sources are limited to 7 pounds of HAP per million pounds WSR produced.

As part of our technology review for HON and P&R I continuous process vents, we identified the following emission reduction options: (1) Remove the TRE concept in its entirety, remove the 50 ppmv and 0.005 scmm Group 1 process vent thresholds, and redefine a HON Group 1 process vent and P&R I Group 1 continuous front-end process vent (require control) as any process vent that emits greater than or equal to 1.0 lb/hr of total organic HAP; (2) the same requirements specified in option 1, but redefine a HON Group 1 process vent and P&R I Group 1 continuous front-end process vent (require control) as any process vent that emits greater than or equal to 0.10 lb/hr of total organic HAP; and (3) keep the TRE concept and keep the 50 ppmv and 0.005 scmm Group 1 process vent thresholds, but change the TRE index value threshold from 1.0 to 5.0. We did not identify any control options for P&R II process vents.

We identified options 1 and 2 as developments in practices, processes, and control technologies for multiple reasons. First, we identified at least one chemical manufacturing NESHAP (*i.e.,* ethylene production) that does not use the TRE index value as criteria for determining whether a process vent should be controlled. Second, based on the responses to our CAA section 114 request, we observed that some facilities are voluntarily controlling continuous process vents that are not required by the HON and P&R I to be controlled per the results of the TRE index value calculation. Of the 13 HON facilities that received the CAA section 114 request, at least three facilities confirmed they were voluntarily controlling some of their Group 2 process vents. We expect other HON and P&R I facilities will do this too because some facilities stated in their response to the CAA section 114 request that, pursuant to 40 CFR 63.113(h), many of their process vents are voluntarily designated as Group 1 process vents ''so that TRE calculations are not required.'' In other words, some facilities are likely electing to control certain process vents that have TRE index values greater than 1.0. Third, based on the responses to our CAA section 114 request, we observed that facilities are routing multiple continuous process vents to a single APCD. This is significant because the current use of the TRE index value is only based on controlling a single process vent with a single APCD, an unrealistic scenario when compared to how chemical manufacturing facilities actually control their process vents. It is much more likely that a facility routes numerous process vents to the same APCD. Finally, also based on responses to our CAA section 114 request, one facility provided over 300 pages of modeled runs that were used to help the facility determine certain characteristics of their continuous HON and P&R I process vents for inputs to TRE index value calculations. The facility had originally included these modeled runs with their Notification of Compliance Status report; we reviewed this information and concluded that determining a TRE index value for certain process vent streams is often theoretical, can be extremely complicated, and is uncertain. In addition, because the TRE index value is largely a theoretical characterization tool, it can be very difficult to enforce. In order to calculate a TRE index value, owners and operators must determine numerous input values; and without the correct amount of process knowledge, verifying inputs can be problematic.

We identified option 3 as a development in practices, processes, and control technologies because we determined that another chemical manufacturing NESHAP (*i.e.,* the MON) contains a TRE index value threshold criteria (*i.e.,* less than or equal to 1.9) that is more stringent than the HON and P&R I TRE index value threshold criteria (*i.e.,* less than or equal to 1.0). Additionally, we identified one particular state rule that uses a more stringent TRE index value threshold than the HON and P&R I TRE index value threshold criteria.[74] This state rule requires owners and operators of air oxidation processes to control any process vent stream or combination of process vent streams with a TRE index value less than or equal to 6.0.[75]

[69] See also, footnote 16, for halogenated vent streams that are Group 1.

[70] For P&R I, organic HAP refers to chemicals listed in Table 5 to NESHAP subpart U.

[71] See also, footnote 16, for halogenated vent streams that are Group 1.

[72] P&R I also contains standards for halogenated batch process vents.

[73] P&R II defines ''continuous process'' to mean a process where the inputs and outputs flow continuously throughout the duration of the process. Continuous processes are typically steady-state.

[74] See Illinois Title 35: Subtitle B: Chapter I: Subchapter C: Parts 218 and 219 (*i.e.,* Organic Material Emission Standards And Limitations For The Chicago Area Subpart V: Batch Operations And Air Oxidation Processes; and Organic Material Emission Standards And Limitations For The Metro East Area Subpart V: Batch Operations And Air Oxidation Processes).

[75] Although the TRE equation for Illinois Title 35: Subtitle B: Chapter I: Subchapter C: Parts 218 and 219 has a different set of TRE coefficients than that of the HON and P&R I, we examined multiple scenarios and determined that a process vent not required to be controlled by the HON or P&R I could still be required to be controlled by this Illinois rule. For example, a halogenated process

Continued

To evaluate impacts of all three of the options presented, we used information from about 50 Group 2 continuous process vents that was provided by 9 of the 13 HON facilities (including 1 P&R I facility collocated with a HON facility) that received the CAA section 114 request. Using vent stream flowrates, vent stream net heating values, and VOC and HAP emission rates (which we obtained from TRE index value calculations that facilities provided in their response to the CAA section 114 request) and the methodology from the sixth edition of the EPA Air Pollution Control Cost Manual,[76] we first calculated a cost effectiveness for installing ductwork and a blower on each vent, assuming each of these vents could be routed to an existing control device achieving 98 percent by weight emission reduction. Given that many of the Group 2 continuous process vents have a very low flow rate and/or emission rate, we found that even installing simple ductwork and a blower would not be cost effective for the majority of these vents. However, we did identify 23 of these Group 2 continuous process vents (a subset of the 50 Group 2 process vents from responses to our CAA section 114 request) for which we found this scenario to be cost effective (*i.e.,* $1,100 per ton of VOC/HAP or less). Using this subset of Group 2 continuous process vents, we extrapolated a set of distributions and parameters that we could apply to all 207 HON facilities and 19 P&R I facilities in order to evaluate impacts of all three of the options presented for continuous HON and P&R I process vents, noting that six of the 23 Group 2 continuous process vents are already voluntarily controlled even though the HON and P&R I do not require them to be. For Group 2 continuous process vents already voluntarily being controlled, we assumed owners and operators use existing APCDs. For Group 2 process vents not already being voluntarily controlled, we assumed owners and operators would need to install an APCD; therefore, we estimated costs to install a thermal oxidizer using the EPA's control cost template.[77] We estimated that 16 HON facilities operating 48 HON Group 2 process vents (32 of which are already voluntarily controlled and 16 that are not currently controlled) and 3 P&R I facilities operating 9 P&R I Group 2 continuous front-end process vents (in which all nine are not currently controlled) would be impacted by option 1 (*i.e.,* control process vents with a total organic HAP emission rate greater than 1.0 lb/hr). For option 2 (*i.e.,* control process vents with a total organic HAP emission rate greater than 0.10 lb/hr), we estimated that 48 HON facilities operating 287 HON Group 2 process vents (96 of which are already voluntarily controlled and 191 that are not currently controlled) and 3 P&R I facilities operating 30 P&R II Group 2 continuous front-end process vents (in which all 30 are not currently controlled) would be impacted. For option 3 (*i.e.,* control process vents with a TRE index value less than or equal to 5.0), we estimated that 16 HON facilities operating 64 HON Group 2 process vents (32 of which are already voluntarily controlled and 32 that are not currently controlled) and 3 P&R I facilities operating nine P&R II Group 2 continuous front-end process vents (in which all 9 are not currently controlled) would be impacted.

Table 14 of this preamble presents the nationwide impacts for the three options considered for continuous process vents at HON facilities. Table 15 of this preamble presents the nationwide impacts for the three options considered for continuous process vents at P&R I facilities. We determined that option 1 is cost effective and we are proposing, pursuant to CAA section 112(d)(6), to remove the TRE concept in its entirety from the HON and P&R I. We are also proposing, pursuant to CAA section 112(d)(6), to remove the 50 ppmv and 0.005 scmm Group 1 process vent thresholds from the HON Group 1 process vent definition and P&R I Group 1 continuous front-end process vent definition, and instead require owners and operators of HON or P&R I process vents that emit greater than or equal to 1.0 lb/hr of total organic HAP to reduce emissions of organic HAP using a flare meeting the proposed operating and monitoring requirements for flares (see section III.D.1 of this preamble); or reduce emissions of total organic HAP or TOC by 98 percent by weight or to an exit concentration of 20 ppmv, whichever is less stringent. We are not proposing to revise the HON and P&R I to reflect the requirements of process vent options 2 and 3 pursuant to CAA section 112(d)(6). We determined that process vent option 2 is not cost effective, and while we believe option 3 is cost effective, it would require keeping the TRE concept in the rule which for reasons explained above is not desired. We solicit comment on the proposed revisions for process vents for the HON and P&R I.

TABLE 14—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR CONTINUOUS PROCESS VENTS AT HON FACILITIES

Control option	Total capital investment ($)	Total annualized costs ($/yr)	VOC emission reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness ($/ton)
1	1,218,000	3,150,000	436	436	7,200
2	5,732,000	10,329,000	809	533	19,400
3	1,493,000	3,208,000	441	441	7,300

vent with a net heating value of 100 MJ/scm, a flowrate of 0.82 scm/min, a TOC mass flow rate of 9 kg/hr, and a HAP mass flow rate of 1 kg/hr would yield a TRE of 3.87 using the HON and/or the P&R I TRE equation (and 3.87 is above the HON and P&R I index value thresholds of 1.0 so no control would be required); however, this same stream would yield a TRE of 5.28 using the Illinois rule TRE equation (and 5.28 is below the Illinois rule TRE index value threshold of 6.0, so control is required).

[76] EPA, 2002. EPA Control Cost Manual, Sixth Edition. January 2002. Publication Number EPA/452/B–02–001.

[77] Refer to the file ''Incinerators and Oxidizers Calculation Spreadsheet (note: updated on 1/16/2018) (xlsm)'' which follows the methodology from the sixth edition of the EPA Air Pollution Control Cost Manual and can be found at the following website: *https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution.*

TABLE 15—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR CONTINUOUS PROCESS VENTS AT P&R I FACILITIES

Control option	Total capital investment ($)	Total annualized costs ($/yr)	VOC emission reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness ($/ton)
1	198,000	586,000	51.0	51.0	11,500
2	557,000	1,242,000	80.1	72.4	17,200
3	215,000	590,000	54.8	54.8	10,800

As part of our technology review for P&R I batch front-end process vents, we identified the following emission reduction option: revise the P&R I control threshold for batch front-end process vents from 26,014 lb/yr on an individual vent basis to 10,000 lb/yr on an aggregate vent basis. We identified this option as a development in practices, processes, and control technologies based on our comparison of the batch process vent requirements in the NESHAP for Chemical Manufacturing Area Sources (CMAS) compared to those in P&R I. We note that CMAS regulates batch process vents from nine area source categories in the chemical manufacturing sector. Owners and operators of a CMAS CMPU with collective uncontrolled organic HAP emissions greater than or equal to 10,000 lb/yr from all batch process vents associated with an affected CMPU must meet emission limits for organic HAP emissions. GACT for batch process vents is defined in the CMAS NESHAP as 85 percent control for existing batch process units (and 90 percent for new units) that have uncontrolled organic HAP emissions equal to or greater than 10,000 lb/yr. As mentioned in the CMAS NESHAP rulemaking,[78] this applicability threshold of 10,000 lb/yr per batch process was also used in the MON and provides indicia of the size of a CMPU because the MON applies to major sources of HAP. The EPA used information from the baseline facility MON database and determined that costs to meet an 85 percent control requirement for existing CMAS CMPUs with uncontrolled organic HAP emissions equal to or greater than 10,000 lb/yr were reasonable ($8,700/ton). We also note that, based on a response to our CAA section 114 request, a facility (the only facility that received the CAA section 114 request and is subject to P&R I) reported to the EPA that it is controlling its five batch front-end process vents even though P&R I does not require these vents to be controlled.[79]

To evaluate impacts of the option presented for P&R I batch front-end process vents, we used information from the batch process vent impacts analysis for the CMAS final rule.[80] We selected the 90 percent control option model plant shown in Table 3 of this impacts analysis for sources subject to P&R I (instead of the 85 percent control option model plant shown in Table 2 of the impacts analysis) to prevent backsliding of the current P&R I requirements which reflect MACT instead of the GACT standards of CMAS. We assumed that all facilities subject to P&R I have batch process vents that would require control under the option evaluated (*i.e.,* under the option to change the Group 1 batch front-end process vent threshold to 10,000 lb/yr on an aggregate vent basis), but as previously mentioned, one facility is already voluntarily controlling their batch front-end process vents. As a result, we estimated impacts to the remaining 18 facilities subject to P&R I.

Table 16 of this preamble presents the nationwide impacts for the option considered for batch front-end process vents at P&R I facilities. We determined that this option is cost effective and we are proposing, pursuant to CAA section 112(d)(6), to remove the annual organic HAP emissions mass flow rate, cutoff flow rate, and annual average batch vent flow rate Group 1 process vent thresholds from the Group 1 batch front-end process vent definition in P&R I at 40 CFR 63.482 (these thresholds are currently determined on an individual batch process vent basis). Instead, owners and operators of batch front-end process vents that release a total of annual organic HAP emissions greater than or equal to 4,536 kg/yr (10,000 lb/yr) from all batch front-end process vents combined would be required to reduce emissions of organic HAP from these process vents using a flare meeting the proposed operating and monitoring requirements for flares (see section III.D.1 of this preamble); or reduce emissions of organic HAP or TOC by 90 percent by weight (or to an exit concentration of 20 ppmv if considered an ''aggregate batch vent stream'' as defined by the rule). We solicit comment on the proposed revisions for batch process vents for P&R I.

TABLE 16—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR BATCH FRONT-END PROCESS VENTS AT P&R I FACILITIES

Control option	Total capital investment ($)	Total annualized costs ($/yr)	VOC emission reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness ($/ton)
1	811,000	650,700	105	105	6,200

We did not identify any developments in practices, processes, or control technologies for P&R II process vents that would achieve a greater HAP emission reduction beyond the emission reduction already required by P&R II. Therefore, we are not proposing any changes to P&R II for this emission

[78] See 74 FR 56008, October 29, 2009.

[79] As previously mentioned, the P&R I control threshold for batch front-end process vents is on an individual vent basis; and each of the batch front-end process vents at this facility releases annual organic HAP emissions less than 11,800 kg/yr (26,014 lb/yr) which is below the control threshold of P&R I.

[80] RTI, 2009. Revised Impacts Analysis for Batch Process Vents Chemical Manufacturing Area Source NESHAP. October 14, 2009. EPA Docket No. EPA–HQ–OAR–2008–0334–0075.

process group based on our technology review.

For further details on all of our assumptions and methodologies we used in these analyses, see the document titled *Clean Air Act Section 112(d)(6) Technology Review for Continuous Process Vents Located in the SOCMI Source Category that are Associated with Processes Subject to HON, Continuous Front-end and Batch Front-end Process Vents Associated with Processes Subject to Group I Polymers and Resins NESHAP, and Process Vents Associated with Processes Subject to Group II Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

b. NSPS Subparts III, NNN, and RRR

As previously mentioned, this action presents the EPA's review of the requirements of 40 CFR part 60, subparts III, NNN, and RRR pursuant to CAA section 111(b)(1)(B). As described in section II.G.2 of this preamble, the statutory review of these NSPS focused on whether there are any emission reduction techniques that are used in practice that achieve greater emission reductions than those currently required by these NSPS and whether any of these developments in practices have become the BSER. Based on this review, we have determined that the BSER for reducing VOC emissions from these SOCMI processes remain combustion, and the current standards of 98 percent reduction of TOC (minus methane and ethane) or reduction of TOC (minus methane and ethane) to an outlet concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen, or use of a flare as an APCD continue to reflect the BSER. However, we are proposing to remove the alternative of maintaining a TRE index value greater than 1 without the use of control device. In addition, we are proposing additional requirements to provide greater assurance of compliance with the standards. We are also proposing standards that would apply during startup, shutdown, maintenance, or inspection of any of the air oxidation units, distillation operations, and reactor processes affected facilities under the applicable NSPS where the affected facility is emptied, depressurized, degassed, or placed into service. The rationales for each of these proposed actions are presented in more detail below. Pursuant to CAA section 111(a), the proposed NSPS included in this action would apply to facilities that begin construction, reconstruction, or modification after April 25, 2023 (see section III.F.2 of this preamble).

NSPS subparts III, NNN, and RRR regulate vent streams [81] from: SOCMI air oxidation units for which construction, reconstruction, or modification commenced after October 21, 1983 that use air (or a combination of air and oxygen) as an oxidizing agent to produce one or more of the chemicals listed in 40 CFR 60.617; SOCMI distillation operations for which construction, reconstruction, or modification commenced after December 30, 1983 which produce any of the chemicals listed in 40 CFR 60.667 as a product; and SOCMI reactor processes for which construction, reconstruction, or modification commenced after June 29, 1990 which operate as part of a process unit which produces any of the chemicals listed in 40 CFR 60.707 as a product. The SOCMI NSPS subparts III, NNN, and RRR regulate VOC emissions in the form of TOC. In promulgating these rules, the EPA determined that, for sources with a TRE index value equal to or less than 1.0, the BSER is the use of thermal incineration or flare achieving 98 percent by weight control efficiency or a concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen. At the time of promulgation, the EPA stated that any control technology can be used to meet BSER as long as it can be demonstrated that the selected control technology is at least as effective as BSER at reducing VOC emissions. For affected facilities with a TRE index value greater than 1.0, BSER is no control and sources are required to maintain a TRE index value greater than 1.0. As previously mentioned, the TRE index value is a measure of the supplemental total resource requirement per unit VOC (or HAP for NESHAP) reduction (see section III.C.3.a of this preamble). It takes into account all the resources which are expected to be used in VOC (or HAP) control by thermal oxidation and provides a dimensionless measure of resource burden based on cost effectiveness. Resources include supplemental natural gas, labor, and electricity. Additionally, if the off-gas contains halogenated compounds, resources will also include caustic and scrubbing and quench makeup water. For the SOCMI NSPS subparts III, NNN, and RRR, the TRE index value is derived from the cost effectiveness associated with VOC control thermal oxidation, and is a function of vent stream flowrate, vent stream net heating value, hourly emissions, and a set of coefficients. The TRE index value was first introduced in an EPA document titled: *Guideline Series for Control of Volatile Organic Compound (VOC) Emissions from Air Oxidation Processes in Synthetic Organic Chemical Manufacturing Industry (SOCMI)* (see EPA–450/3–84–015, December 1984). In general, similar to the HON and P&R I, process vents with a TRE index value equal to or less than 1.0 are required to be controlled under SOCMI NSPS III, NNN and RRR. For additional details regarding the TRE index value (including the equation and coefficients used to calculate the TRE index value for the SOCMI NSPS subparts III, NNN, and RRR), see the document titled *CAA 111(b)(1)(B) review for the SOCMI air oxidation unit processes, distillation operations, and reactor processes NSPS subparts III, NNN, and RRR,* which is available in the docket for this rulemaking.

We reviewed the RACT/BACT/LAER clearinghouse database, other subsequent EPA, state, and local regulatory development efforts related to process vents, and responses to our CAA section 114 request for advances in process operations, design or efficiency improvements, or other systems of emission reduction.

While we find no change in the BSER for reducing VOC emissions from air oxidation units, distillation operations, and reactor processes, we are proposing certain revisions to the current standards. First, we are proposing to remove the option of maintaining a TRE index value greater than 1 as an alternative to controlling emissions. We are proposing this change based on the following observations we made with respect to the NSPS TRE index. We observed that some facilities subject to NSPS subpart III, NNN, and/or RRR are voluntarily controlling process vents even though such control is not required under the applicable NSPS because their calculated NSPS TRE index value is greater than 1. At least three HON facilities that are also subject to at least one of the three process vent NSPS confirmed in response to our CAA section 114 request, that they were voluntarily controlling some of their Group 2 process vents even though control is not required under either the HON or the applicable NSPS. We expect

[81] Vent stream means: any gas stream, containing nitrogen which was introduced as air to the air oxidation reactor, released to the atmosphere directly from any air oxidation reactor recovery train or indirectly, after diversion through other process equipment (for NSPS subpart III); any gas stream discharged directly from a distillation facility to the atmosphere or indirectly to the atmosphere after diversion through other process equipment (for NSPS subpart NNN); and any gas stream discharged directly from a reactor process to the atmosphere or indirectly to the atmosphere after diversion through other process equipment (for NSPS subpart RRR). In all cases, the vent stream excludes relief valve discharges and equipment leaks.

other facilities that are subject to the HON and at least one of the NSPS subparts III, NNN, and RRR will do this too because some facilities stated in their response to the CAA section 114 request that, pursuant to 40 CFR 63.113(h), many of their process vents are voluntarily designated as HON Group 1 process vents ''so that TRE calculations are not required.'' In other words, some facilities are likely electing to control certain process vents that have TRE index values greater than 1.0. In addition, based on the responses to our CAA section 114 request, we observed that facilities are routing multiple process vents to a single APCD. This is significant because the current use of the TRE index value is only based on controlling a single process vent with a single APCD, an unrealistic scenario when compared to how chemical manufacturing facilities actually control their process vents. It is much more likely that a facility routes numerous process vents to the same APCD. For the reason stated above, we no longer believe that TRE index value accurately represents the BSER, and because a single APCD can control emissions from multiple process vents, control could be cost-effective even at a TRE index value of greater than 1. Finally, also based on responses to our CAA section 114 request, one HON and P&R I facility (that is also subject to all three process vent NSPS) provided over 300 pages of modeled runs that were used to help the facility determine certain characteristics of their process vents for inputs to HON and P&R I TRE index value calculations. We reviewed this information and concluded that determining a TRE index value for certain process vent streams is often theoretical, can be extremely complicated, and is uncertain. In addition, because the TRE index value is largely a theoretical characterization tool, it can be very difficult to enforce. In order to calculate a TRE index value, owners and operators must determine numerous input values; and without the correct amount of process knowledge, verifying inputs can be problematic. We evaluated the cost of requiring that a facility control all process vents irrespective of its TRE index value and the average cost per facility is provided in Table 17 of this preamble. In addition, given the complexity of chemical manufacturing facilities and their use of APCDs (*e.g.,* integrated with numerous emission sources subject to various chemical manufacturing related NSPS and NESHAP), we found the cost to be cost effective based on the cost-effectiveness we evaluated for four different NSPS triggering scenarios described further below (see Table 18 of this preamble). For the reasons stated above, we believe that proposing to remove the option to maintain a greater than 1 TRE index value as an alternative to emission reduction under NSPS subparts IIIa, NNNa, and RRRa make practical and enforceable sense. In other words, for NSPS subparts IIIa, NNNa, and RRRa, we are proposing owners and operators reduce emissions of total organic carbon (TOC) (minus methane and ethane) from all vent streams of an affected facility (*i.e.,* SOCMI air oxidation unit processes, distillation operations, reactor processes for which construction, reconstruction, or modification after April 25, 2023 by 98 percent by weight or to a concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen, whichever is less stringent, or combust the emissions in a flare meeting more stringent operating and monitoring requirements for flares (we discuss these flare requirements further below in this section) (see proposed 40 CFR 612a(a), 40 CFR 60.662a(a), and 40 CFR 60.702a(a)).

We are also proposing to tighten up the requirements for flares. All three NSPS subparts allow the use of a flare in accordance with the flare general provisions at 40 CFR 60.18 as an alternative to meeting the numeric standards. The EPA had previously believed flares could achieve 98 percent emission reduction if it were operated in accordance with 40 CFR 60.18. See, *e.g.,* 55 FR 26913. Because the NSPS reflect the BSER under conditions of proper operation and maintenance, in doing its review, we also evaluate and determine the proper testing, monitoring, recordkeeping and reporting requirements needed to ensure compliance with the emission standards. In doing so, in our review of several chemical and petrochemical sector related NESHAP, such as MON, the EMACT standards, and Petroleum Refineries NESHAP, we identified new operating and monitoring requirements for flares that are different than those specified in 40 CFR 60.18.[82] The EPA included these flare requirements in recent RTR rulemakings in order to ensure flares used as APCDs achieve 98 percent HAP destruction efficiencies and these flare requirements are also being proposed for HON and P&R I (this is discussed in detail in section III.D.1 of this preamble). We evaluated the costs of these improved flared requirements and the average cost per facility is provided in Table 17 of this preamble. In addition, given the complexity of chemical manufacturing facilities and their use of APCDs (*e.g.,* integrated with numerous emission sources subject to various chemical manufacturing related NSPS and NESHAP), we found the cost to be cost effective based on the cost-effectiveness we evaluated for four different NSPS triggering scenarios described further below (see Table 18 of this preamble). In light of the above, we are proposing to include in the new NSPS subparts the same operating and monitoring requirements for flares that we are proposing for flares subject to the HON and P&R I (see proposed 40 CFR 619a, 40 CFR 60.669a, and 40 CFR 60.709a).

Third, we are proposing to amend the definition of vent streams such that the emission standards would also apply to PRD emissions. Currently, the NSPS subparts III, NNN, and RRR exclude ''relief valve discharges'' from the definition of vent stream (see 40 CFR 60.611, 40 CFR 60.661, and 40 CFR 60.701) and therefore, emissions from PRDs[83] are currently excluded from emissions standards in these NSPS. However, the preambles to the proposed and final subparts were silent on the reason for this exclusion in the definition of a ''vent stream.'' Further, in reviewing the RACT/BACT/LAER clearinghouse database, we identified at least one SOCMI facility that has requirements for reactor process vents such that no PRD may emit directly to the atmosphere under any circumstance, and the capture system must be inspected regularly to verify integrity. In light of the above, we are proposing to the ''vent stream'' definition to remove the exclusion of ''relief valve discharge.''

Fourth, we are proposing to expressly prohibit emissions from affected facilities bypassing an APCD at any time. In our review of several chemical and petrochemical sector related NESHAP, none of the rules allow regulated emissions from a process vent to bypass an APCD at any time, and if a bypass is used, it is considered a

[82] In general the differences include: new requirements to 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; new requirements related to flare tip velocity and the combustion zone gas; and new work practice standards 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). For the specific flare requirements, refer to: 40 CFR 63.1103(e)(4) (EMACT standards), 40 CFR 63.2450(e)(5) (MON), and 40 CFR 63.670 and 40 CFR 63.671 (Petroleum Refinery Sector rule).

[83] The acronym ''PRD'' means pressure relief device and is common vernacular to describe a variety of devices regulated as relief valve discharges.

violation and the owner or operator is required to estimate and report the quantity of regulated emissions released.[84] The EPA included these requirements for bypasses in recent RTR rulemakings because bypassing an APCD could result in a release of regulated emissions from a process vent into the atmosphere.[85] Currently, the NSPS subparts III and NNN do not contain any requirements for bypass lines, and NSPS subpart RRR only requires owners and operators to document when a vent stream being routed to an APCD is diverted through a bypass line resulting in emissions to the atmosphere; therefore, it is unclear whether the current standards prohibit bypassing an APCD, which could result in a release of otherwise regulated emissions from a process vent into the atmosphere. We are therefore proposing in NSPS subparts IIIa, NNNa, and RRRa that an owner or operator may not bypass the APCD at any time, that a bypass is a violation (see proposed 40 CFR 60.612a(b)(2), 40 CFR 60.662a(b)(2), and 40 CFR 60.702a(b)(2)), and that owners and operators must estimate and report the quantity of TOC released should any such violation occur (see proposed 40 CFR 60.615a(d)(1) and (2), 40 CFR 60.665a(d)(1) and (2), and 40 CFR 60.705a(d)(1) and (2)).

Also, we are proposing in the new NSPS subparts additional control device requirements for adsorbers when such APCD is used to meet the emission standards in the applicable NSPS. In our review of the MON, we identified requirements for adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite (see 40 CFR 63.2450(e)(7)). The MON requires owners and operators of this type of APCD to use dual adsorbent beds in series and conduct daily monitoring because the use of a single bed does not ensure continuous compliance unless the bed is replaced well before breakthrough.[86] The EPA included these requirements in their recent RTR rulemaking for MON in order to ensure owners and operators monitor for performance deterioration for these specific types of APCDs and these requirements are also being proposed for HON and P&R I (see section III.E.5.b of this section for additional information about this). Currently, the NSPS subparts III, NNN, and RRR do not contain any requirements for adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite. We evaluated the cost of these requirements for adsorbers and the average cost per facility is provided in Table 17 of this preamble. In addition, given the complexity of chemical manufacturing facilities and their use of APCDs (*e.g.,* integrated with numerous emission sources subject to various chemical manufacturing related NSPS and NESHAP), we found the cost to be cost effective based on the cost-effectiveness we evaluated for four different NSPS triggering scenarios described further below (see Table 18 of this preamble); therefore, in order to ensure that continuous compliance is achieved for NSPS subpart IIIa, NNNa, and RRRa facilities at all times when controlling VOC emissions (*i.e.,* for those facilities that choose to use adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite as BSER to meet the 98-percent control or a 20 ppmv TOC outlet concentration emission standard), we are proposing to include at 40 CFR 60.613a(a)(6), 40 CFR 60.663a(a)(6), and 40 CFR 60.703a(a)(6) the same monitoring requirements for adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite that we are proposing for the HON and P&R I.

Lastly, consistent with *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008),[87] we are proposing standards for periods of startup and shutdown, which are currently not subject to the emission standards in NSPS subparts III, NNN and RRR. For this effort, we identified, as part of our review of the RACT/BACT/LAER clearinghouse database, some SOCMI facilities in Texas that have specific requirements related to maintenance, startup, and shutdown for equipment and vessel openings related to process vents (*i.e.,* opening air oxidation unit processes, distillation operations, and reactor processes) and we found that these requirements are included in several SOCMI related NESHAP (*i.e.,* EMACT standards, the MON, and/or the petroleum refineries NESHAP) (we discuss these requirements further below in this section of the preamble). Given that many SOCMI processes that are subject to the SOCMI NSPS are also located at chemical plants subject to these related NESHAP and these facilities use the same APCDs to comply with all of these rules (to reduce both VOC and HAP emissions), we also examined the process vent provisions from each of these rules. Review of the NESHAP standards mentioned above revealed several related requirements that did not exist at the time the EPA promogulated NSPS subparts III, NNN, and RRR.

As previously mentioned in our review of the RACT/BACT/LAER clearinghouse database and as found in our review of in several chemical and petrochemical sector related NESHAP,[88] the EPA has included a work practice standard for maintenance vents requiring owners and operators to meet certain conditions before they open equipment to the atmosphere, including opening equipment to the atmosphere that are related to NSPS process vents (*e.g.,* air oxidation units, distillation operations, and reactor processes). This work practice standard requires that, prior to opening process equipment to the atmosphere, the equipment must either: (1) Be drained and purged to a closed system so that the hydrocarbon content is less than or equal to 10 percent of the LEL; (2) be opened and vented to the atmosphere only if the 10-percent LEL cannot be demonstrated and the pressure is less than or equal to 5 psig, provided there is no active purging of the equipment to the atmosphere until the LEL criterion is met; (3) be opened when there is less than 50 pounds of VOC that may be emitted to the atmosphere; or (4) for installing or removing an equipment blind, depressurize the equipment to 2 psig or less and maintain pressure of the equipment where purge gas enters the equipment at or below 2 psig during the blind flange installation, provided none of the other proposed work practice standards can be met.[89] We evaluated the cost associated with this work practice standard and the average cost per facility is provided in Table 17 of this preamble. In addition, given the complexity of chemical manufacturing facilities and their use of APCDs (*e.g.,* integrated with numerous emission

[84] See 40 CFR 63.1103(e)(6), 40 CFR 63.1109(g), and 40 CFR 63.1110(e)(6) (EMACT standards); 40 CFR 63.2450(e)(6), 40 CFR 63.2520(e)(12), and 40 CFR 63.2525(n) (MON); and 40 CFR 63.644(c), 40 CFR 63.660(i)(2), and 40 CFR 63.655(g)(6)(iii) and (i)(4) (Petroleum Refinery Sector rule).

[85] See 85 FR 40386, July 6, 2020 (EMACT standards), 85 FR 49084, August 12, 2020 (MON), and 80 FR 75178, December 1, 2015 (Petroleum Refinery Sector rule).

[86] According to the MON, ''breakthrough'' means the time when the level of HAP or TOC, measured at the outlet of the first bed, has been detected is at the highest concentration allowed to be discharged from the adsorber system and indicates that the adsorber bed should be replaced.

[87] In *Sierra Club,* the court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1). The court explained that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that an SSM exemption violates this requirement. The EPA believes the reasoning in *Sierra Club* applies equally to section 111 standards.

[88] See 40 CFR 63.1103(e)(5) (EMACT standards), 40 CFR 63.2450(v) (MON), and 40 CFR 63.642(c) (Petroleum Refinery Sector rule).

[89] The EPA added these equipment opening requirements in the recent RTR to be consistent with *Sierra Club.*

sources subject to various chemical manufacturing related NSPS and NESHAP), we found the cost to be cost effective based on the cost-effectiveness we evaluated for four different NSPS triggering scenarios described further below (see Table 18 of this preamble). We determined that these work practice standards for maintenance vents (*i.e.,* equipment openings related to process vents) is a technique used in practice that achieves emission reductions during startup, shutdown, maintenance, or inspection of any of the air oxidation units, distillation operations, and reactor processes affected facilities under the applicable NSPS where the affected facility is emptied, depressurized, degassed, or placed into service. CAA section 111(h)(1) authorizes the Administrator to promulgate ''a design, equipment, work practice, or operational standard, or combination thereof'' if in his or her judgment, ''it is not feasible to prescribe or enforce a standard of performance.'' Equipment openings related to process vents are not ''emitted through a conveyance designed and constructed to emit or capture such pollutant'' (see CAA section 111(h)(2)) and it is not possible to characterize each of these potential release points. For these reasons (which are the same reasons we discuss in section III.D.4.a of this preamble for including a work practice standard for maintenance activities in the HON and P&R I), we are proposing these work practice standards for maintenance vents in NSPS subparts IIIa, NNNa, and RRRa as the standards reflecting the BSER during periods of startup and shutdown (see proposed 40 CFR 612a(c), 40 CFR 60.662a(c), and 40 CFR 60.702a(c)).

As mentioned above, we analyzed cost and emission reductions as part of our evaluation of each of the options considered above. We used the average cost and emission reductions that we determined for process vents subject to the HON to evaluate the costs, emission reductions, and cost-effectiveness of each of the options considered above for NSPS subparts IIIa, NNNa, and RRRa. Table 17 of this preamble summarizes these average HON cost and emission reductions.

TABLE 17—AVERAGE COST AND EMISSION REDUCTIONS FOR PROCESS VENTS SUBJECT TO THE HON USED FOR THE SUITE OF PROPOSED PROCESS VENT REQUIREMENTS EVALUATED FOR THE NSPS SUBPARTS IIIa, NNNa, AND RRRa

Description	Total capital investment ($)	Total annual cost ($/yr)	Total annual cost w/recovery credits ($/yr)	VOC emission reductions (tpy)
Flare monitoring requirements [1]	3,752,200	789,200	789,200	93
Maintenance vent requirements [2]	.....	460	460	.....
Revising the standard from a TRE calculation to control of all vent streams [3]	39,300	98,400	98,400	9.1
Adsorber monitoring (carbon cannisters) [4]	26,500	2,500	2,500	0.21

[1] For additional details, see the document titled *Control Option Impacts for Flares Located in the SOCMI Source Category that Control Emissions from Processes Subject to HON and for Flares that Control Emissions from Processes Subject to Group I and Group II Polymers and Resins NESHAPs,* which is available in the docket for this rulemaking.

[2] For additional details, see the document titled *Review of Regulatory Alternatives for Certain Vent Streams in the SOCMI Source Category that are Associated with Processes Subject to HON and Processes Subject to Group I and Group II Polymers and Resins NESHAPs,* which is available in the docket for this rulemaking.

[3] For additional details, see the document titled *Clean Air Act Section 112(d)(6) Technology Review for Continuous Process Vents Located in the SOCMI Source Category that are Associated with Processes Subject to HON, Continuous Front-end and Batch Front-end Process Vents Associated with Processes Subject to Group I Polymers and Resins NESHAP, and Process Vents Associated with Processes Subject to Group II Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

[4] For additional details, see the document titled *Analysis of Monitoring Costs and Dual Bed Costs for Non-Regenerative Carbon Adsorbers Used in the SOCMI Source Category that are Associated with Processes Subject to HON and for Non-Regenerative Carbon Adsorbers that are Associated with Processes Subject to Group I Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

We also evaluated the costs of requiring the suite of proposed requirements described above to SOCMI nationwide. We conducted an analysis to estimate how many non-HON NSPS affected facilities are expected/projected to be subject to the suite of proposed process vent requirements presented above. Given that we are proposing these same suite of process vent requirements for HON facilities, we only considered non-HON NSPS affected facilities here under CAA section 111 so as to not double count cost and emission reductions from affected facilities that are subject to both these SOCMI NSPS and the HON. An affected facility can become subject to SOCMI NSPS subpart IIIa, NNNa, or RRRa under one of the following scenarios: (1) The affected facility is at a new greenfield facility; (2) the affected facility is a new affected facility at an existing plant site; (3) an existing affected facility is modified; or (4) an existing affected facility triggers the reconstruction requirements. For scenario 1 (*i.e.,* affected facility is at a new greenfield facility), we assumed only one non-HON greenfield facility will trigger NSPS subpart IIIa, NNNa, or RRRa over the next 5 years (we do not expect any non-HON greenfield facilities, but to be comprehensive in our analysis, we assumed one). For comprehensiveness, we also assumed this greenfield facility would not be subject to the EMACT standards, MON, and Petroleum Refinery Sector rule; and the facility will use one flare and one non-flare APCD to control all their process vents from SOCMI NSPS unit operations. We used facility responses to our CAA section 114 request to help us determine the number of facilities that could potentially trigger scenarios 2, 3, and 4.

For scenario 2 (*i.e.,* new affected facilities constructed at existing plant sites), we estimate six new affected facilities will be built and be subject to new requirements in a new NSPS subpart IIIa, NNNa, or RRRa over the next 5 years. Facilities responding to our CAA section 114 request had 500 unit operations subject to either NSPS subpart III, NNN, or RRR; and only one of these unit operations was new construction in the last 5 years and not subject to the HON. We determined that there are currently 284 SOCMI facilities subject to either NSPS subpart III, NNN, or RRR; and 196 of these are non-HON-subject facilities.[90] Based on responses

[90] As of March 2022, according to the OECA's ECHO tool, there were 284 facilities located in the United States that are potentially subject to at least

Continued

to our CAA section 114 request, HON facilities have on average 45 unit operations per facility. Assuming non-HON facilities are smaller, we estimate that non-HON facilities subject to either NSPS subpart III, NNN, or RRR have 15 unit operations per facility. Assuming the same distribution of new construction for non-HON facilities, we estimate that six new affected facilities (one new unit operation per non-HON facility subject to either NSPS subpart III, NNN, or RRR), would have been constructed in the last 5 years (1/500*15*196). This analysis assumes that the same number of unit operations that were constructed in the last 5 years would be constructed in the next 5 years. We then assumed two of the six new affected facilities (or about 33 percent) are collocated at a petroleum refinery, MON, and/or EMACT facility. Therefore, two of the six unit operations would already be complying with requirements in the NSPS (because of the NESHAP); and we also assumed that of the remaining four new unit operations, two will not use a flare to comply with the NSPS.

For Scenarios 3 and 4 (*i.e.,* existing facility is modified or reconstructed), we estimate 12 existing affected facilities will trigger new requirements in a new NSPS subpart IIIa, NNNa, or RRRa over the next 5 years due to modification or reconstruction. As mentioned previously, facilities responding to our CAA section 114 request had 500 unit operations subject to either III, NNN, or RRR; however, only two of these unit operations were modified or reconstructed in the last 5 years and not subject to the HON. Using similar procedure as described above for scenario 2, we estimate that 12 modified or reconstructed affected facilities (one modified or reconstructed unit operation per non-HON facility subject to the NSPS), would have been modified or reconstructed in the last 5 years (2/500*15*196). This analysis assumes that the same number of unit operations that were modified or reconstructed in the last 5 years would be modified or reconstructed in the next 5 years. We then assumed four of the 12 (or about 33 percent) modified or reconstructed affected facilities are collocated at a refinery, MON, and/or EMACT facility. Therefore, four of the 12 unit operations are already complying with requirements in the NSPS (because of the NESHAP); and we also, assumed that of the remaining eight modified or reconstructed unit operations, four will not use a flare to comply with the NSPS.

Table 18 of this preamble below presents the nationwide impacts for the suite of proposed process vent requirements presented above that we considered for vent streams subject to new NSPS subparts IIIa, NNNa, and RRRa. The cost-effectiveness for the suite of process vent requirements evaluated under this NSPS review is $4,570 per ton VOC (cost-effectiveness w/recovery credits), which we consider to be cost effective. See the document titled *CAA 111(b)(1)(B) review for the SOCMI air oxidation unit processes, distillation operations, and reactor processes NSPS subparts III, NNN, and RRR,* which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in this analysis.

For the reasons stated above, pursuant to CAA section 111(b)(1)(B), we are proposing new SOCMI NSPS to: (1) Remove the TRE index value concept in its entirety and require all process vents from an affected facility be controlled; (2) eliminate the relief valve discharge exemption from the definition of ''vent stream'' such that any relief valve discharge to the atmosphere of a vent stream is a violation of the emissions standard; (3) prohibit an owner or operator from bypassing the APCD at any time, and to report any such violation (including the quantity of TOC released to the atmosphere); (4) require that flares used to reduce emissions comply with the same flare operating and monitoring requirements as those we have promulgated for flares used in SOCMI-related NESHAP; (5) require work practice standards for maintenance vents during startup, shutdown, maintenance, or inspection of any of the air oxidation units, distillation operations, and reactor processes affected facilities under the applicable NSPS where the affected facility is emptied, depressurized, degassed, or placed into service; and (6) add control device operational and monitoring requirements for adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite (see section III.E.5.b of this preamble). We are proposing that affected facilities that are constructed, reconstructed, or modified after April 25, 2023 would be subject to these proposed requirements in NSPS subparts IIIa, NNNa, and/or RRRa.

TABLE 18—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR NON-HON VENT STREAMS TRIGGERING NSPS SUBPARTS IIIa, NNNa, AND/OR RRRa

Scenario	Total capital investment ($)	Total annual cost ($/yr)	Total annual cost w/recovery credits ($/yr)	VOC emission reductions (tpy)	Cost-effectiveness w/recovery credits ($/ton VOC)
Scenario 1 (*i.e.,* one affected facility at a new greenfield facility)	1,665,300	461,000	461,000	93	4,960
Scenario 2 (*i.e.,* new affected facility at six existing facilities)	7,609,500	1,780,000	1,780,000	392	4,540
Scenarios 3 and 4 (*i.e.,* 12 existing affected facilities modified or triggers the reconstruction requirements)	15,192,500	3,558,000	3,558,000	783	4,540
Total	24,467,300	5,799,800	5,799,800	1,269	4,570

4. Standards for Transfer Racks

We did not identify any developments in practices, processes, or control technologies for HON transfer racks that would achieve a greater HAP emission reduction beyond the emission reduction already required by the HON. Therefore, under CAA section 112(d)(6) we are not proposing any changes to the

one of the process vent NSPS subparts III, NNN, and/or RRR. The list of facilities is available in the document titled *Lists of Facilities Subject to the HON, Group I and Group II Polymers and Resins NESHAPs, and NSPS subparts VV, VVa, III, NNN, and RRR,* which is available in the docket for this rulemaking.

HON for this emission process group based on our technology review.[91] We note, however, that under CAA section 112(d)(2) and (3) we are proposing changes to the applicability threshold for HON transfer racks to fill a regulatory gap in the current HON (see section III.D.8 of this preamble).

5. Standards for Wastewater

As previously mentioned, HAP are emitted into the air from wastewater collection, storage, and treatment systems that are uncovered or open to the atmosphere through volatilization of organic compounds at the liquid surface. Emissions occur by diffusive or convective means, or both. Diffusion occurs when organic concentrations at the water surface are much higher than ambient concentrations. The organics volatilize, or diffuse into the air, to reach equilibrium between aqueous and vapor phases. Convection occurs when air flows over the water surface, sweeping organic vapors from the water surface into the air. The rate of volatilization is related directly to the speed of the air flow over the water surface.

The HON defines wastewater to mean water that: (1) Contains either: (i) an annual average concentration of Table 9 (to NESHAP subpart G) compounds of at least 5 ppmw and has an annual average flow rate of 0.02 liter per minute (lpm) or greater or (ii) an annual average concentration of Table 9 (to NESHAP subpart G) compounds of at least 10,000 ppmw at any flow rate, and that (2) is discarded from a CMPU that meets all of the criteria specified in 40 CFR 63.100 (b)(1) through (3). Wastewater is process wastewater or maintenance wastewater. For process and maintenance wastewaters and certain liquid streams in open systems within a CMPU, the HON defines Group 1 wastewater streams at existing sources as having: either a total annual average concentration of Table 9 (to NESHAP subpart G) compounds greater than or equal to 10,000 ppmw at any flow rate; or a total annual average concentration of compounds in Table 9 to NESHAP subpart G greater than or equal to 1,000 ppmw, and the annual average flow rate is greater than or equal to 10 liter per minute. NESHAP subpart G provides owners and operators several control options for wastewater tanks, surface impoundments, containers, individual drain systems, and oil-water separators. NESHAP subpart G also specifies performance standards for treating wastewater streams using open or closed biological treatment systems or using a design steam stripper with vent control. For APCDs (*e.g.,* thermal oxidizers) used to control emissions from collection system components, steam strippers, or closed biological treatment, NESHAP subpart G provides owners or operators several compliance options, including 95-percent destruction efficiency, a 20 ppmv outlet concentration, or design specifications for temperature and residence time.

P&R I defines wastewater similarly to how the term is defined in the HON, except instead of referring to Table 9 (to NESHAP subpart G) compounds, P&R I refers to Table 5 (to NESHAP subpart U) compounds. The standards for wastewater in NESHAP subpart U refer to the provisions in NESHAP subpart G. Generally, the P&R I Group 1 wastewater threshold is the same as in the HON, except P&R I refers to compounds that meet the definition of organic HAP in 40 CFR 63.482 in addition to those listed in table 9 of NESHAP subpart G, and P&R I exempts wastewater that pertain solely and exclusively to organic HAP listed on table 8 of NESHAP subpart G).

P&R II defines wastewater as aqueous liquid waste streams exiting equipment at an affected source. No further stratification into groups for applicability is specified. As previously mentioned, process vents, storage tanks, and wastewater systems[92] combined are regulated according to a production-based emission rate (*e.g.,* pounds HAP per million pounds BLR or WSR produced) standard for existing sources in both BLR (130 pounds) and WSR (10 pounds). For new sources, BLR sources require 98 percent reduction or an overall limit of 5,000 pounds of HAP per year. New WSR sources are limited to 7 pounds of HAP per million pounds WSR produced.

As part of our CAA section 112(d)(6) technology review for HON and P&R I wastewater streams, we evaluated tightening the HON and P&R I wastewater Group 1 applicability thresholds. Specifically, we evaluated the option (option 1) to require owners and operators to manage and treat existing wastewater streams with total annual average concentration of Table 9 (to NESHAP subpart G) compounds (for HON) and Table 5 (to NESHAP subpart U) compounds (for P&R I) greater than or equal to 1,000 ppmw at any flow rate; or greater than or equal to 10 ppmw at a flow rate of 10 lpm or greater. We did not identify any control options for P&R II wastewater streams.

Table 19 of this preamble presents the nationwide costs and impacts for the wastewater stream control option considered for HON facilities. Table 20 of this preamble presents the nationwide costs and impacts for the wastewater stream control option considered for P&R I facilities. For details on the assumptions and methodologies used in this analysis, see the document titled *Clean Air Act Section 112(d)(6) Technology Review for Wastewater Streams Located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Wastewater Streams that are Associated with Processes Subject to Group I and II Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

We determined that the option to revise wastewater stream Group 1 threshold applicability (*i.e.,* to require control of existing wastewater streams with total annual average concentration of Table 9 to subpart G compounds (for HON) or Table 5 to 40 CFR 63, subpart U compounds (for P&R I) greater than or equal to 1,000 ppmw at any flow rate; or greater than or equal to 10 ppmw at a flow rate of 10 lpm or greater) is not cost effective based on the costs and emission reductions presented. Therefore, we are not proposing to revise the HON and P&R I to reflect the requirements of this option pursuant to CAA section 112(d)(6). Also, we did not identify any developments in practices, processes, or control technologies for P&R II wastewater that would achieve a greater HAP emission reduction beyond the emission reduction already required by P&R II. Therefore, we are not proposing any changes to P&R II for this emission process group based on our technology review.

[91] P&R I and P&R II sources do not have transfer racks as emission sources.

[92] P&R II defines a wastewater system as a system made up of a drain system and one or more waste management units; and a wastewater management unit means any component, piece of equipment, structure, or transport mechanism used in storing, treating, or disposing of wastewater streams, or conveying wastewater between storage, treatment, or disposal operations.

TABLE 19—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR WASTEWATER STREAMS AT HON FACILITIES

Control option	Total capital investment ($)	Total annualized costs ($/yr)	VOC emission reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness ($/ton)
1	504,766,000	210,739,500	2,755	2,755	76,500

TABLE 20—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR WASTEWATER STREAMS AT P&R I FACILITIES

Control option	Total capital investment ($)	Total annualized costs ($/yr)	VOC emission reductions (tpy)	HAP emission reductions (tpy)	HAP cost effectiveness ($/ton)
1	46,847,800	22,548,200	220	220	102,500

6. Standards for Equipment Leaks

As previously mentioned, emissions of VOC and HAP 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 HON, P&R I, and P&R II includes agitators, compressors, connectors, instrumentation systems, OEL, PRDs, pumps, sampling collection systems, and valves [93] 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 results of our CAA section 112(d)(6) technology review for equipment leaks associated with HON, P&R I, and P&R II processes are discussed in section III.C.6.a of this preamble. Equipment regulated by NSPS subpart VVa includes connectors, compressors, PRDs, pumps, sampling collection systems, OEL, and valves that contain or contact material that are 10 percent by weight or more of VOC, operate 300 hours per year or more, and are not in vacuum service. The results of our CAA 111(b)(1)(B) review for equipment leaks subject to NSPS subpart VVa are discussed in section III.C.6.b of this preamble.

a. HON, P&R I, and P&R II

The HON, P&R I, and P&R II standards for BLR, require owners or operators to meet the control requirements of NESHAP subpart H which contains the MACT standard for equipment leaks, including LDAR provisions and other control requirements. Subpart H was also identified in P&R II as the appropriate level of control for facilities producing WSR, but additional compliance options were allowed in the P&R II rule for WSR sources. We are proposing to no longer allow the additional compliance options for WSR sources, and to require that all sources comply with the HON equipment leaks regulations (see section III.D.10 of this preamble for further details about this proposed amendment). Depending on the type of equipment, the standards require either periodic monitoring for and repair of leaks, the use of specified equipment to minimize leaks, or specified work practices. Monitoring for leaks generally must be conducted using EPA Method 21 in appendix A–7 to 40 CFR part 60 or other approved equivalent monitoring techniques. The equipment leak HON, P&R I, and P&R II 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 (*e.g.,* visual, audible, olfactory).

The practices, processes, and control technologies considered during MACT development for equipment leaks at HON, P&R I, and P&R II facilities included LDAR. To identify developments for the technology review, we reviewed responses to our CAA section 114 request, the BACT/LAER database, and evaluated other federal regulations (*i.e.,* the Petroleum Refinery Sector rule, MON, and NSPS subpart VVa) and state regulations (*i.e.,* the Texas fugitive emissions rules [94] applicable to petrochemical processes). Also, the EPA conducted a general analysis in a 2011 equipment leaks study [95] 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 used this 2011 equipment leaks analysis as a reference for conducting the technology review for equipment leaks at HON, P&R I, and P&R II facilities.

Our technology review for equipment leaks of HAP (*e.g.,* broader than the EtO discussed in section II.B.2.a.ii of this preamble) identified several developments in LDAR practices and processes: (1) Lowering the leak definition for valves in light liquid service from 500 ppm to 100 ppm with monthly monitoring and skip periods; (2) in addition to requirements specified in option 1, lowering the leak definition for valves in gas and vapor service from 500 ppm to 100 ppm with monthly monitoring and skip periods; and (3) in addition to requirements specified in option 2, lowering the leak definition for pumps in light liquid service from 1,000 ppm to 500 ppm with monthly monitoring. For all other component types, we did not identify developments in LDAR practices and processes in the chemical sector.[96]

[93] We believe P&R II contains a typographical error in that valves are currently excluded from the definition of equipment leaks at 40 CFR 63.522; see section III.D.10 of this preamble for our rationale for this conclusion and our proposal to address this issue.

[94] 30 TAC 115, subchapters D and H, Division 3.

[95] 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.

[96] We note that while other technologies such as optical gas imaging and sensor networks may be considered developments in monitoring for

Emissions reductions were estimated for the new developments that we identified using component counts and emission factors. The component counts were derived using data provided to the EPA in response to our CAA section 114 request (see section II.C of this preamble). We developed model component counts for 207 HON facilities, 19 P&R I facilities (and 10 of the P&R I facilities are collocated with HON processes), and 5 P&R II facilities (and 3 of the P&R II facilities are collocated with HON processes). We then multiplied the number of nationwide HON, P&R I, and P&R II processes [97] by the model component counts to estimate the nationwide component counts. Subsequently, baseline emissions and emissions after implementation of the controls for each component were calculated using these nationwide component counts and emission factors and leak frequencies for the chemical manufacturing industry from the 2011 equipment leaks study.

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. 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 emission reductions in the analyses.

We calculated the VOC and HAP cost effectiveness by dividing the incremental annual costs by the emissions reductions. Table 21 of this preamble presents the nationwide costs and impacts for the suite of equipment leak control options considered for HON facilities (including 10 P&R I facilities and 3 P&R II facilities collocated with HON facilities). Table 22 of this preamble presents the nationwide costs and impacts for the suite of equipment leak control options considered for P&R I facilities (not collocated with HON facilities). Table 23 of this preamble presents the nationwide costs and impacts for the suite of equipment leak control options considered for P&R II facilities (not collocated with HON facilities). For details on the assumptions and methodologies used in this analysis, see the document titled *Clean Air Act Section 112(d)(6) Technology Review for Equipment Leaks Located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Equipment Leaks that are Associated with Processes Subject to Group I and II Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

Based on the costs and emission reductions for each of the options, we determined that none of them are cost effective. Therefore, we are not proposing to revise the HON, P&R I, and P&R II to reflect the requirements of these options pursuant to CAA section 112(d)(6).

TABLE 21—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR HON EQUIPMENT NOT IN EtO SERVICE

Control option	Total capital investment ($)	Total annualized costs w/o credits ($/yr)	Total annualized costs with credits ($/yr)	HAP emission reductions (tpy)	Average HAP cost effectiveness with credits ($/ton)	Average HAP cost effectiveness w/o credits ($/ton)	Average incremental HAP cost effectiveness with credits ($/ton)
1	2,079,000	538,400	393,000	16	25,000	34,000	.....
2	3,637,000	872,000	672,000	22	31,000	40,000	47,000
3	4,926,00	1,325,000	1,105,000	24	46,000	55,000	217,000

TABLE 22—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR P&R I EQUIPMENT

Control option	Total capital investment ($)	Total annualized costs w/o credits ($/yr)	Total annualized costs with credits ($/yr)	HAP emission reductions (tpy)	HAP cost effectiveness with credits ($/ton)	HAP cost effectiveness w/o credits ($/ton)	Average incremental HAP cost effectiveness with credits ($/ton)
1	62,300	16,100	11,700	0.48	24,000	34,000	.....
2	109,000	26,200	20,200	0.67	30,000	39,000	45,000
3	148,000	40,500	33,900	0.73	46,000	55,000	228,000

equipment leaks, the EPA did not evaluate these options further as we have insufficient information on how use of such monitoring technology compares to current EPA Method 21 practices for chemical sector sources and we are soliciting comment on these technologies. See section V of this preamble for more details.

[97] We used information from the 2006 RTR HON proposal preamble (see pg. 34434: *https://www.govinfo.gov/content/pkg/FR-2006-06-14/pdf/06-5219.pdf*) to estimate the number of HON CMPUs nationwide. In 2006, the EPA estimated 729 CMPUs nationwide from 238 HON facilities based off information from the American Chemistry Council. We scaled this data to 207 HON facilities [(207 × 729)/238 = 634]. For P&R I facilities we assumed 1 EPPU per facility resulting in 19 EPPU's. For P&R II facilities we assumed each facility had 1 process unit associated with either WSR or BLR processes resulting in 5 process units total.

TABLE 23—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR P&R II EQUIPMENT

Control option	Total capital investment ($)	Total annualized costs w/o credits ($/yr)	Total annualized costs with credits ($/yr)	HAP emission reductions (tpy)	HAP cost effectiveness with credits ($/ton)	HAP cost effectiveness w/o credits ($/ton)	Average incremental HAP cost effectiveness with credits ($/ton)
1	16,400	4,300	3,200	0.13	25,000	33,000	.....
2	28,700	7,000	5,400	0.18	30,000	39,000	44,000
3	39,400	10,700	8,900	0.19	47,000	56,000	350,000

b. NSPS Subpart VVa

This action presents the EPA's review of the requirements of 40 CFR part 60, subpart VVa pursuant to CAA section 111(b)(1)(B). As described in section II.G.2 of this preamble, the statutory review of these NSPS focused on whether there are any emission reduction techniques that are used in practice that achieve greater emission reductions than those currently required by these NSPS and whether any of these developments in practices have become the BSER. Based on this review, we have determined that the BSER for reducing VOC emissions from equipment leaks from SOCMI processes remain work practice standards based on LDAR. However, we have determined that there are techniques used in practice related to LDAR of certain equipment that achieve greater emission reductions than those currently required by NSPS subpart VVa. We are proposing that BSER for gas and light liquid valves is the same monitoring in an LDAR program as NSPS subpart VVa, but now at a leak definition of 100 ppm, and BSER for connectors is monitoring in the LDAR program at a leak definition of 500 ppm and monitored annually, with reduced frequency for good performance. The rationale for this proposed action is presented in more detail below. Pursuant to CAA section 111(a), the proposed NSPS included in this action would apply to facilities that begin construction, reconstruction, or modification after April 25, 2023 (see section III.F.2 of this preamble).

NSPS subpart VVa regulates equipment leaks from SOCMI affected facilities whose construction, reconstruction, or modification commenced after November 7, 2006. NSPS subpart VVa addresses fugitive emissions of VOC from SOCMI affected facilities. Fugitive emissions are emissions caused by leaks in processing equipment. NSPS subpart VVa defines the affected facility as the ''group of all equipment within a process unit,'' with equipment meaning ''each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by this subpart.'' In other words, the affected facility is the collection of all the valves, pumps, etc., within a process unit. For the purpose of NSPS subpart VVa, the process units are those components assembled to produce any of the chemicals listed in 40 CFR 60.489a of subpart VVa. In promulgating NSPS subpart VVa, the EPA determined that BSER is work practice standards for equipment leaks based on LDAR and other control requirements. The standards apply to connectors, compressors, PRDs, pumps, sampling collection systems, OEL, and valves in VOC service. A piece of equipment is in VOC service if it contains or contacts a fluid that is at least 10 percent by weight or more of VOC. Depending on the type of equipment, the standards require either periodic monitoring for and repair of leaks, the use of specified equipment to minimize leaks, or specified work practices. Monitoring for leaks must be conducted using EPA Method 21 in appendix A–7 to 40 CFR part 60 or other approved equivalent monitoring techniques. These standards are generally the same as those for HON equipment leaks, except the standards apply to VOC instead of HAP, and the connector monitoring requirements in VVa were stayed.[98]

For our review of NSPS subpart VVa, we reviewed the RACT/BACT/LAER clearinghouse database, and other EPA, state, and local regulatory development efforts related to equipment leaks to determine advances in process operations, design or efficiency improvements, or other systems of emission reduction. The 2011 equipment leaks study (see section III.C.6.a of the preamble) considered a 100 ppm leak definition, and we identified at least one regulation, in the Bay Area Air Quality Management District (BAAQMD), that requires gas and light liquid valves to meet a 100 ppm leak definition. Additionally, in recent consent decrees, the EPA has required low-emitting gas and light liquid valves be used.[99] Low-emitting valves use low emission packing in the valve stem to reduce emissions below 100 ppm, but even these low-emitting valves can eventually leak over time, as valve packing can deteriorate as valves get used more and more. Discussions with valve manufacturers have also shown that low-emitting valves are comparable in cost to normal valves and are considered by at least one manufacturer to be the valve standard commonly used by their customers. Because low-emitting valves do not continually keep leaks below 100 ppm, the EPA did not consider these valves as best system of emission reduction. Instead, the EPA evaluated BSER based on LDAR at different leak definitions.

We also evaluated the HON equipment leak requirements as many NSPS process units are already complying with such requirements. The HON equipment leak standards require monitoring connectors at a leak definition of 500 ppm annually, with reduced monitoring frequency with good performance. These are the same requirements as the stayed VVa connector monitoring requirements.

Based on the information gathered from our review of NSPS subpart VVa, we evaluated the following two control options. Option 1 was lowering the leak definition for gas and light liquid valves from 500 ppm to 100 ppm. Option 2 was Option 1 plus adding connector monitoring requirements from the stayed 2006 subpart VVa final rule, which is also consistent with the current HON requirements.

For both options considered, we calculated the average costs and cost effectiveness on an affected facility basis. Table 24 of this preamble summarizes these average costs, cost-effectiveness, and emissions reductions on an affected facility basis. For

[98] See 73 FR 31372, June 2, 2008.

[99] *https://www.epa.gov/sites/default/files/2013-09/documents/dowchemical-cd.pdf.*

additional details, see the document titled *CAA 111(b)(1)(B) review for the SOCMI Equipment Leaks NSPS Subpart VVa* which is available in the docket for this rulemaking.

TABLE 24—AVERAGE COST AND ENVIRONMENTAL IMPACTS FOR EQUIPMENT LEAK OPTIONS PER AFFECTED FACILITY

Control option	Total capital investment ($)	Total annual cost ($/yr)	Total annual cost w/recovery credits ($/yr)	VOC emission reductions (tpy)	Cost-effectiveness w/recovery credits ($/ton VOC)	
					Average	Incremental
Option 1: Gas and LL valve monitoring monthly at a leak definition of 100 ppm, with skip periods [1]	10,100	2,360	1,780	0.64	2,780	N/A
Option 2: Option 1 plus connector monitoring annually at a leak definition of 500 ppm, with skip periods	208,300	38,800	30,500	9	3,390	3,400

[1] Skip periods refers to reduced monitoring frequency, *i.e.,* skipping monitoring during some periods due to good performance.

We are proposing to determine Option 2 to be cost-effective for new, modified, and reconstructed sources. Many SOCMI facilities are already complying with these requirements. Based on the results of our analysis, we are proposing BSER for NSPS subpart VVb to be NSPS subpart VVa plus revising the equipment leak standards in a new subpart VVb to lower the leak definition for gas and light liquid valves from 500 ppm to 100 ppm and include requirements for connectors consistent with the HON requirements.

We conducted an analysis to estimate how many affected facilities are expected/projected to be subject to the proposed equipment leak requirements presented above. An affected facility can become subject to NSPS subpart VVb under one of the following scenarios: (1) The affected facility is at a new greenfield facility; (2) the affected facility is a new affected facility at an existing plant site; (3) an existing affected facility is modified; or (4) an existing affected facility triggers the reconstruction requirements. For scenario 1 (*i.e.,* affected facility is at a new greenfield facility), we assumed only one greenfield facility, with two process units, will trigger NSPS subpart VVb over the next 5 years. We used facility responses to our CAA section 114 request to help us determine the number of facilities that could potentially trigger scenarios 2, 3, and 4.

For scenario 2 (*i.e.,* new affected facilities constructed at existing plant sites), we assessed information from facilities responding to the EPA's CAA section 114 request. The responses to the CAA section 114 request showed 34 affected facilities subject to NSPS subparts VV or VVa. One of the affected facilities was a new construction in the last 5 years. The OECA's ECHO tool (*https://echo.epa.gov*) indicates there are currently 592 SOCMI facilities subject to subpart VV or VVa. We assumed an average of two affected facilities per plant site. Assuming the same distribution of new construction, 34 new affected facilities would have been constructed in the last 5 years for all SOCMI facilities. The analysis assumes that the same number of affected facilities that were constructed in the last 5 years would be constructed in the next 5 years.

For scenario 3 (*i.e.,* existing facility is modified) and scenario 4 (*i.e.,* existing facility triggers reconstruction requirements), facilities responding to the EPA's CAA section 114 request did not report any modified or reconstructed facilities in the last 5 years or in the last 10 years. Eight of the 34 affected facilities discussed in scenario 2 indicated either modification or reconstruction since their construction, ranging back to the 1940's. We assumed the eight affected facilities were modifications because the reconstruction requirements are less likely to be triggered. For scenario 3 we assumed that at least one affected facility would be modified in the next 5 years, likely by addition of new unit operations that would increase the number of components. We also assumed that no affected facilities will trigger the reconstruction requirements in scenario 4.

Table 25 of this preamble presents the nationwide impacts for the Option 2. See the document titled *CAA 111(b)(1)(B) review for the SOCMI Equipment Leaks NSPS Subpart VVa,* which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in this analysis. We are proposing that affected facilities that are constructed, reconstructed, or modified after April 25, 2023 would be subject to these proposed requirements in NSPS subpart VVb. We solicit comment on all of the proposed requirements related to standards for equipment leaks in new NSPS subpart VVb.

TABLE 25—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR AFFECTED FACILITIES TRIGGERING NSPS SUBPART VVb

Scenario	Total capital investment ($)	Total annual cost ($/yr)	Total annual cost w/recovery credits ($/yr)	VOC emission reductions (tpy)	Cost-effectiveness w/recovery credits ($/ton VOC)
Scenario 1 (*i.e.,* two affected facilities at a new greenfield facility)	416,600	77,500	60,900	18	3,380
Scenario 2 (*i.e.,* 34 new affected facilities)	7,081,700	1,317,900	1,035,800	313	3,310
Scenarios 3 and (*i.e.,* one modified existing affected facility)	208,300	38,800	30,500	9	3,390

TABLE 25—NATIONWIDE EMISSIONS REDUCTIONS AND COST IMPACTS OF CONTROL OPTIONS CONSIDERED FOR AFFECTED FACILITIES TRIGGERING NSPS SUBPART VVb—Continued

Scenario	Total capital investment ($)	Total annual cost ($/yr)	Total annual cost w/recovery credits ($/yr)	VOC emission reductions (tpy)	Cost-effectiveness w/recovery credits ($/ton VOC)
Total	7,706,600	1,434,200	1,127,200	340	3,320

7. Standards for Fenceline Monitoring

Fenceline monitoring refers to the placement of monitors along the perimeter of a facility to measure pollutant concentrations. Coupled with requirements for root cause analysis and corrective action upon triggering an actionable level, this work practice standard is a development in practices considered under CAA section 112(d)(6) for the purposes of managing fugitive emissions. The measurement of these pollutant concentrations and comparison to concentrations estimated from mass emissions via dispersion modeling is used to ground-truth emission estimates from a facility's emissions inventory. If concentrations at the fenceline are greater than expected, the likely cause is that there are underreported or unknown emission sources affecting the monitors. In addition to the direct indication that emissions may be higher than inventories would suggest, fenceline monitoring provides information on the location of potential emissions sources because it provides complete spatial coverage of a facility. Further, when used with a mitigation strategy, such as root cause analysis and corrective action upon exceedance of an action level, fenceline monitoring can be effective in reducing emissions and reducing the uncertainty associated with emissions estimation and characterization. Finally, public reporting of fenceline monitoring data provides public transparency and greater visibility, leading to more focus and effort in reducing emissions. Fenceline monitoring has not yet been required or considered in prior rulemaking actions or regulations governing SOCMI, P&R I or P&R II HAP emissions, but has been required for Petroleum Refineries in 40 CFR part 63, subpart CC (see 40 CFR 63.658). As such we evaluated the application of fenceline monitoring as a development in practices, processes, and control technologies pursuant to CAA section 112(d)(6). As further explained below, our evaluation only focuses on HON and P&R I facilities that use, produce, store, or emit benzene, 1,3-butadiene, chloroprene, ethylene dichloride, EtO, or vinyl chloride.

Fenceline monitoring has been successfully applied to the petroleum refineries source category as a technique to manage and reduce benzene emissions from fugitive emissions sources such as storage vessels, wastewater treatment systems, and leaking equipment. In 2015, the EPA promulgated the RTR for the petroleum refineries source category and required that refineries install and operate fenceline monitors following EPA Reference Method 325 A/B to monitor benzene emissions. The 2015 rule (80 FR 75178) required that refineries install and begin operating passive diffusive tube monitors by 2018 and report benzene emissions monitoring data to the EPA beginning in 2019.[100] Additionally, the 2015 rule required that refineries conduct a root cause analysis to identify sources of high fenceline monitoring readings (*i.e.,* above an annual action level) and then develop a corrective action plan to address the sources and reduce emissions to a level that will bring fenceline monitoring concentrations below the action level.[101] To date, the EPA has received fenceline monitoring data for more than four years.[102] These data show that petroleum refinery fenceline concentrations have dropped by an average of 30 percent since the inception of the monitoring program requirements. These results illustrate that fenceline monitoring is an effective tool in reducing emissions and preserving emission reductions on an ongoing basis for these sources.

The majority of emissions from sources covered by the HON and P&R I are fugitive in nature and are often difficult to characterize and quantify. In order to assess the effect of emissions for purposes of risk characterization, we rely on the assumption that reported emissions are accurate. Thus, if the reported inventories are accurate, all facilities should be able to meet the fenceline concentration action levels considering the controls we are proposing. Further, fenceline monitoring provides the facility and the EPA with an understanding of where the concentrations of toxic HAP exceed expected concentrations and provide a path for owners and operators to further identify the root causes of such exceedances and to mitigate emissions from these sources. For facilities regulated by the HON or P&R I, the EPA identified six specific HAP that we determined were the most appropriate, useful, and suitable for inclusion on the fenceline monitoring program. These compounds were identified as cancer risk drivers in the prior RTRs for the HON and P&R I conducted in 2006 (HON) and 2008 and 2011 (P&R I) or identified as cancer risk drivers in the residual risk reviews proposed in this action, and each is emitted (largely as fugitive emissions) from processes at HON and P&R I sources.[103] As part of our CAA section 114 request, we also collected fenceline monitoring data for these compounds at various facilities and often found them to be present in concentrations that were higher than our modeling of reported emissions inventories would predict.[104] Although the model to monitor averages are not quantitatively comparable because they are based on different time periods (*i.e.,* an annual average versus 7 sampling periods), the monitored concentrations typically exceeded concentrations established by the modeling; in some cases, by multiple orders of magnitude. This is an indicator that reported emissions may be underestimated. Therefore, in this action, the EPA is proposing at 40 CFR 63.184 to implement a fenceline monitoring

[100] See 40 CFR 63.658(a) and 40 CFR 63.655(h)(8).

[101] 40 CFR 63.658(f)–(h).

[102] Quarterly fenceline monitoring reports are available through the EPA's WebFIRE database at *https://cfpub.epa.gov/webfire/.* The EPA has also developed a dashboard to improve public access to this data. The dashboard is available at *https://awsedap.epa.gov/public/extensions/Fenceline_Monitoring/Fenceline_Monitoring.html?sheet=MonitoringDashboard.*

[103] P&R II sources do not emit any of these six pollutants.

[104] See model to monitor comparison in the document entitled *Clean Air Act Section 112(d)(6) Technology Review for Fenceline Monitoring located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Fenceline Monitoring that are Associated with Processes Subject to Group I Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

program under CAA section 112(d)(6) to limit fugitive emissions. We are proposing to require fenceline monitoring at facilities in the SOCMI and P&R I source categories that use, produce, store, or emit benzene, 1,3-butadiene, chloroprene, EtO, ethylene dichloride, or vinyl chloride. A brief summary of the proposed fenceline sampling requirements and our rationale for selecting the corrective action concentration levels are provided below. We solicit comment on the proposed standards for fenceline monitoring.

Developments in monitoring technology and practices. The EPA reviewed the available literature and identified two different methods for monitoring fugitive emissions of benzene, 1,3-butadiene, chloroprene, ethylene dichloride, EtO, and vinyl chloride around a chemical facility. These methods include: (1) Passive diffusive tube monitoring networks for the measurement of benzene, 1,3-butadiene, chloroprene, and ethylene dichloride; and (2) Canister monitoring networks for the measurement of EtO and vinyl chloride. We considered these monitoring methods as developments in practices under CAA section 112(d)(6) for purposes of managing fugitive emission sources at chemical manufacturing facilities.

Fenceline passive diffusive tube monitoring networks employ a series of diffusive tube samplers at set intervals along the fenceline to measure a time-integrated [105] ambient air concentration at each sampling location. A diffusive tube sampler consists of a small tube filled with an adsorbent, selected based on the pollutant(s) of interest, and capped with a specially designed cover with small holes that allow ambient air to diffuse into the tube at a small, fixed rate. Diffusive tube samplers have been demonstrated to be a cost-effective, accurate technique for measuring concentrations of pollutants (*e.g.,* benzene) resulting from fugitive emissions in a number of studies [106] [107] as well as in the petroleum refining sector.[108] In addition, diffusive samplers are used in the European Union to monitor and maintain air quality, as described in European Union directives 2008/50/EC and Measurement Standard EN 14662–4:2005 for benzene. The International Organization for Standardization developed a standard method for diffusive sampling (ISO/FDIS 16017–2). In recent years, the EPA has expanded the use of diffusive sorbent tubes through our CAA Section 114 authority to evaluate fenceline concentrations of HAP in addition to benzene, such as chloroprene and 1,3-butadiene. To support these efforts, the EPA used existing uptake rates included in EPA Methods 325A/B at 40 CFR part 63, Appendix A, and when necessary, developed new uptake rates.[109] Therefore, the EPA is proposing to require fenceline monitoring of benzene, chloroprene, 1,3-butadiene, and ethylene dichloride measured with 14-day sampling periods using diffusive tube samplers in accordance with EPA Methods 325A/B at 40 CFR part 63, Appendix A. The EPA notes that based on recent studies, we will be incorporating new sorbents and revised uptake rates for certain pollutants in an upcoming revision to EPA Method 325B.[110]

In this action, the EPA is proposing a new EPA reference method to monitor the concentration of EtO and vinyl chloride from facility fenceline locations, EPA Method 327 to 40 CFR part 63, Appendix A. EPA Method 327 is a canister sampling and analysis method that provides procedures for measuring trace levels of targeted VOC (including organic HAP) in ambient air. It draws upon the guidance in Method TO–15A [111] for canister sampling and further develops this guidance into a robust method specific for fenceline monitoring, defining required data quality objectives, and incorporating existing best practices into the method. In EPA Method 327, ambient air samples are collected using specially prepared and pre-cleaned evacuated stainless-steel canisters. For analysis, a known volume of air is directed from the canister to a pre-concentrator, and the targeted VOC from the sample are measured using a gas chromatograph-mass spectrometer (GC–MS). The EPA is proposing to require fenceline monitoring of EtO and vinyl chloride with 24-hour sampling periods once every 5 days using canister sampling in accordance with EPA Method 327 at 40 CFR part 63, appendix A. This monitoring frequency is necessary to ensure that all onsite processes are monitored regularly and approaches the time-integrated sampling of EPA Methods 325A/B, while still maintaining the cost effectiveness of implementing a canister monitoring network. A sampling frequency of every five days will also help to reduce the possibility of only monitoring emission spikes such that the annual average concentration is indicative of the actual average emissions from the site.

The EPA considered requiring EPA Method 327 for monitoring ethylene dichloride, because ethylene dichloride is almost always going to be monitored alongside vinyl chloride. Because vinyl chloride is monitored with EPA Method 327, monitoring ethylene dichloride with EPA Method 327 would simplify the monitoring and increase the cost effectiveness of implementing the fenceline monitoring program. However, in this action EPA has chosen to require EPA Methods 325A/B for monitoring ethylene dichloride because based on the available data, at least one vinyl chloride monomer facility reported emissions of chloroprene, which would require that facility to monitor for chloroprene with EPA Methods 325A/B. Because monitoring with EPA Methods 325A/B is more continuous than with EPA Method 327 and the results with EPA Methods 325A/B generally have less variability, monitoring with EPA Methods 325A/B is the preferred approach. We are however soliciting comment on whether we should allow the use of EPA Method 327 for monitoring fenceline concentration of ethylene dichloride for sites that have to monitor fenceline concentrations of vinyl chloride but do not have to monitor fenceline concentrations of chloroprene, benzene, or 1,3-butadiene.

While EPA Method 327 is based on Method TO–15A, there are notable differences between the two methods. EPA Method 327 addresses some of the challenges encountered while performing sampling and analysis of EtO with Method TO–15A by incorporating best practices into the method. EPA Method 327 also is written

[105] Time-integrated sampling refers to the collection of a sample at a controlled rate. The sample provides an average concentration over the sample period. For the diffusive tube samplers, the controlled rate of sampling is dictated by the uptake rate. The uptake rate is the amount of a compound that can be absorbed by a particular sorbent over time during the sampling period.

[106] McKay, J., M. Molyneux, G. Pizzella, V. Radojcic. *Environmental Levels of Benzene at the Boundaries of Three European Refineries,* prepared by the CONCAWE Air Quality Management Group's Special Task Force on Benzene Monitoring at Refinery Fenceline (AQ/STF–45), Brussels, June 1999.

[107] Thoma, E.D., M.C. Miller, K.C. Chung, N.L. Parsons, B.C. Shine. 2011. *Facility Fenceline Monitoring using Passive Samplers,* J. Air & Waste Manage Assoc. 61: 834–842.

[108] See EPA–HQ–OAR–2010–0682; fenceline concentration data collected for the petroleum refining sector rulemaking can be accessed via the Benzene Fenceline Monitoring Dashboard at *https://awsedap.epa.gov/public/extensions/Fenceline_Monitoring/Fenceline_Monitoring.html?sheet=MonitoringDashboard.*

[109] Docket Reference to ''Method 325B Addendum A, Evaluation of Chloroprene Uptake Rate Report.''

[110] Markes International Ltd. Uptake Rate Tests: Tests for a range of compounds onto four sorbent types over periods of 1 and 2 weeks. September 27, 2022.

[111] *https://www.epa.gov/sites/default/files/2019-12/documents/to-15a_vocs.pdf.*

to mandate actions within the method as opposed to providing guidance on how the method should be performed. The major differences between Method TO–15A and Method 327 include the following, but are not limited to:

- Updated sample cleanliness requirements and removal of the option for glass bottles and non-rigid containers.
- invalidation of samples that do not meet initial and final canister pressure requirements.
- requirement to examine chromatograms for potential interferences, with a strong recommendation for the use of full scan ion spectra MS mode during analysis.
- requirements for certification and recertification of standards to ensure the quality and stability of the standards.
- requirements for one field blank and one field duplicate for each sampling period.
- requirement for the field blank diluent gas to be humidified zero air.
- maximum allowed sample holding time of 7 days.
- requirement to drift correct measured values based on continuous calibration verification criteria according to the procedures in EPA Method 325B.

To achieve the lowest possible detection limits with canister sampling, the EPA has determined that it is necessary to mandate these best practices within EPA Method 327. Although facilities were asked to follow these best practices in the CAA section 114 request, the data submitted in response to the request indicated there are sampling and analysis issues that still need to be addressed, especially in regard to measuring EtO.

While the EPA acknowledges that there are some drawbacks of time-integrated sampling, including the lack of immediate feedback on the acquired data and the loss of short-term temporal information, our experience with the fenceline monitoring program in the petroleum refining sector has proven that these systems are capable of achieving meaningful emissions reductions by allowing earlier detection of significant fugitive emissions than conventional source-specific monitoring, such as through a periodic leak detection program with EPA Method 21 of 40 CFR part 60, appendix A–7. Additionally, time-integrated monitoring systems are generally lower-cost and require less labor than time-resolved [112] monitoring systems; they generally have lower detection capabilities as well. Time-resolved monitoring stations have been used for a variety of pollutants in a variety of settings and the methods are well-established. However, compared to the passive diffusive tube monitoring stations or canister sampling, time-resolved monitoring stations are more expensive, more labor-intensive, and generally require highly-trained staff to operate. The EPA acknowledges the state of technology is advancing and that the capabilities of these systems will continue to improve and that the costs will likely decrease. Therefore, we are providing a pathway for an owner or operator to request use of other types of monitoring networks to demonstrate compliance with the fenceline standards through a request for an alternative test method under the provisions of 40 CFR 63.7(f).

Siting, design, and sampling requirements for fenceline monitors. The EPA is proposing that fenceline monitors be deployed to measure fenceline concentrations of benzene, 1,3-butadiene, chloroprene, ethylene dichloride, EtO, and vinyl chloride at chemical manufacturing facilities subject to the HON or P&R I. A primary requirement for a fenceline monitoring system is that it provides adequate spatial coverage for determination of representative pollutant concentrations at the boundary of the facility. In an ideal scenario, fenceline monitors would be placed so that any fugitive plume originating within the facility would have a high probability of intersecting one or more monitors, regardless of wind direction. Therefore, we are proposing that for passive diffuse tube monitoring of benzene, 1,3-butadiene, chloroprene, and ethylene dichloride, facilities determine the appropriate number and location of fenceline sampling monitors using the siting method requirements described in EPA Method 325A of 40 CFR part 63, Appendix A. Sample collection and analysis of the passive tubes would be performed according to EPA Methods 325A and 325B of 40 CFR part 63, appendix A.

For canister monitoring of EtO and vinyl chloride, the EPA is proposing that each facility would place 8 canisters evenly spaced on the monitoring perimeter. The monitoring perimeter may be the facility fenceline or may be inside the facility fenceline as long as all sources of the monitored compound(s) are contained within the perimeter. Because we recognize that the spatial coverage provided by this arrangement is less than that provided under EPA Method 325A, the EPA is also proposing that facilities would be required to move the canister sampling locations with alternating sampling periods in order to ensure complete spatial coverage of the facility. For facilities with emission sources of monitored pollutants that are not contained within one contiguous area, the EPA is proposing that these secondary areas would be monitored as well, with the number of canisters on the secondary area dictated by the size of the area. The proposed requirements for siting the canisters are described in NESHAP subpart H (see proposed 40 CFR 63.184). While we recognize that EPA Method 325A contains an option for siting passive tubes by determining the geographic center of the facility and spacing the tubes based on measured angles from the center point, the EPA has chosen not to provide a similar approach for the canisters in order to simplify the siting of the canisters. We request comment on the proposed approach for siting the canisters and whether we should provide an alternative siting approach based on measured angles from the center point.

For each sampling period (2-week period for passive tubes or 24-hour period for canisters), the facility would determine a delta c, calculated as the lowest sample value for the compound of interest subtracted from the highest sample value for the compound of interest. This approach is intended to subtract out the estimated contribution from background emissions that do not originate from the facility. The delta c for the most recent year of samples (26 sampling periods for passive tubes and 73 sampling periods for canisters) would be averaged to calculate an annual average delta c. The annual average delta c would be determined on a rolling basis, meaning that it is updated with every new sample (*i.e.,* for passive tubes, every 2 weeks a new annual average delta c is determined from the most recent 26 sampling periods and for canisters, every 5 days a new annual average delta c is determined from the most recent 73 sampling periods). This rolling annual average delta c would be calculated for each compound of interest and compared against a concentration action level for each pollutant.

Action levels and rationale. As mentioned above, the EPA is proposing to require facilities subject to the HON and P&R I to take corrective action to reduce fugitive emissions if monitored fenceline concentrations exceed a specific concentration action level on a

[112] Time resolved monitoring involves sampling within short timeframes (generally on the magnitude of minutes to hours) in order to see the variation in concentration of a compound in near real time.

rolling annual average basis.[113] For benzene, 1,3-butadiene, ethylene dichloride, and vinyl chloride, we selected the proposed fenceline action levels by modeling fenceline HAP concentrations using the emissions inventories used in the residual risk assessment of the facility-wide review of the SOCMI source category and Neoprene Production source category (*e.g.,* 2017 NEI), assuming that those reported emissions represented full compliance with all proposed HON or P&R I requirements, adjusted for additional control requirements we are proposing in this action.[114] We estimated the long-term fenceline post-control HAP concentrations at each facility using the post-control facility-wide emissions inventory and the EPA's HEM. Concentrations were estimated by the model at a set of polar grid receptors centered on each facility, as well as surrounding census block centroid receptors extending from the facility outward to 50 km (~31 miles). For purposes of this modeling analysis, we assumed that the nearest off-site polar grid receptor was the best representation of each facility's fenceline concentration in the post-control case, unless there was a census block centroid nearer to the fenceline than the nearest off-site polar grid receptor or an actual receptor was identified from review of the site map. In those instances, we estimated the fenceline concentration as the concentration at the census block centroid. Only receptors (either the polar or census block) that were estimated to be outside the facility fenceline were considered in determining the maximum HAP concentration level for each facility. After modeling each facility, we then selected the maximum annual average benzene, 1,3-butadiene, ethylene dichloride, and vinyl chloride fenceline concentration modeled at any facility as the action level for that HAP. Thus, if the reported inventories are accurate, all facilities should be able to meet the fenceline concentration action levels. We note that this analysis does not correlate to any particular metric related to risk. The maximum annual average HAP concentrations modeled at the fenceline for any facility, rounded to one significant figure, were 9 micrograms per cubic meter ($\mu g/m^3$, benzene),[115] 3 $\mu g/m^3$ (1,3-butadiene), 4 $\mu g/m^3$ (ethylene dichloride), and 3 $\mu g/m^3$ (vinyl chloride). Therefore, the EPA is proposing these fenceline concentrations as action levels for these four HAP.

Due to current limitations in method detection limits for EtO and chloroprene, and the concerns for cancer risk driven by these two pollutants, we selected the proposed fenceline action levels to be equal to three times the representative detection limit (RDL) for these two pollutants, as this is the minimum concentration that can be measured with reasonable certainty. The RDL is based on the results of the best performing testing companies and laboratories using the most sensitive analytical procedures. A multiplication factor of three is used to reduce the imprecision of the method until the imprecision in the sampling and analysis is similar to the precision of other EPA methods. The RDL for chloroprene was determined to be 0.09 $\mu g/m^3$, and the RDL for EtO was determined to be 0.07 $\mu g/m^3$. Therefore, the EPA is proposing action levels of 0.3 $\mu g/m^3$ for chloroprene and 0.2 $\mu g/m^3$ for EtO. We acknowledge that these proposed concentrations are lower than the fenceline modeled concentrations for EtO and chloroprene from facilities in the SOCMI and Neoprene Production source categories after implementation of our proposed standards; however, considering whole facility risks, and in light of the configuration of the emission sources subject to these rules that contribute to whole facility risk that remain for the impacted communities after the imposition of controls, we set the action levels of chloroprene and EtO at facility boundaries as low as possible (considering method detection limitations) to ensure emission reductions anticipated from implementation of controls used to meet the proposed standards and to achieve additional HAP emission reductions. Though we have not proposed to prescribe additional specific controls to the existing inventories because remaining emissions are fugitive in nature and less certain in terms of frequency of events and characterization of emissions, there are still measures that are likely available that could be employed to address emission sources in a more directed manner. For example, identifying and reducing emissions from sources such as maintenance events that could not be accounted for in the post control modeling exercise would be effective in achieving additional emission reductions. In addition to proposing this fenceline monitoring work practice standard under CAA section 112(d)(6) reflecting developments in practices, processes, and control technologies, we also request comment on whether it would be appropriate, in the final rulemaking, to promulgate these proposed fenceline monitoring work practice standards, including the proposed fenceline action levels for EtO and chloroprene, under the second step of the CAA section 112(f)(2) residual risk decision framework to provide an ample margin of safety to protect public health. Making such a determination might be warranted, for example, in light of the fact that we considered the facility-wide risk as an additional factor not considered in the source category-specific risk acceptability decisions for the SOCMI and Neoprene Production source categories that are both the subject of this single combined rulemaking action.

For further details of the analysis, see the document titled *Clean Air Act Section 112(d)(6) Technology Review for Fenceline Monitoring located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Fenceline Monitoring that are Associated with Processes Subject to Group I Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

Non-source category emissions. This proposed approach also considers the possibility that offsite sources could contribute to modeled concentrations at a facility's fenceline. Additionally, non-HON and non-P&R I sources could be located within facility property boundaries that also contribute to monitor readings. In this proposal, we are allowing the subtraction of offsite interfering sources (as they are not within the control of the owner or operator) through site specific monitoring plans, but we are not providing this option for onsite, non-source category emissions. The action levels above were based on facility-wide emissions, and therefore these non-source category sources have been considered in their development. Applying the fenceline standard to the whole facility will also limit emissions of toxic HAP from all sources and provide more certainty in decisions being made on whether the entire facility emissions align with what is expected from the EPA's analysis. It will also provide assurances to fenceline communities that emission reductions are achieved and maintained. This is important in the chemical sector, where there could be numerous source

[113] Calculated every two weeks for benzene, 1,3-butadiene, ethylene dichloride, and chloroprene. Calculated every five days for ethylene oxide and vinyl chloride.

[114] We note that 10 of the 19 facilities with P&R I processes also have HON processes.

[115] Since we are considering facility-wide emissions, an action level of 9 $\mu g/m^3$ was chosen for benzene since the refinery who set the action level in 2015 for that source category is also a HON facility.

categories that can be collocated within a larger facility, and have common tank farms, wastewater systems, heat exchangers, APCDs, fuel gas systems, etc., that may be assigned or apportioned to various source categories.

Corrective action requirements. The proposed fenceline monitoring provisions would require the initiation of root cause analysis upon exceeding the annual average concentration as determined on a rolling average every sampling period. The root cause analysis is an assessment conducted through a process of investigation to determine the primary underlying cause and other contributing causes of an exceedance of the action level. The root cause analysis would be required to be initiated within 5 days of determining that an updated annual average concentration of a target pollutant exceeds the applicable action level. A root cause analysis must be conducted following each 14-day sampling period in which the annual average concentration(s) remain above the action level to determine whether the monitoring results and associated data indicate additional sources of emissions contributing to concentrations remaining above the action level. If the owner or operator cannot determine the root cause of the exceedance within 30 days of determining there was an exceedance of an action level, the owner or operator would be required to use real-time sampling techniques (*e.g.,* mobile gas chromatographs) to determine the root cause of the exceedance.

If the underlying causes of the action level exceedance are deemed to be from sources under the control of the owner or operator, the owner or operator would be required to take corrective action to address the underlying cause of the exceedance and to bring concentrations back below the action level as expeditiously as possible. Completion of the root cause analysis and initial corrective action would be required within 45 days of determining that there was an exceedance of an action level. If the owner or operator requires longer than 45 days to implement the corrective actions identified by the root cause analysis, the owner or operator would be required to submit a corrective action plan no later than 60 days after completion of the root cause analysis.

After completion of the initial corrective action, if the delta c for the next sampling period for samples collected by EPA Methods 325A/B or the next three sampling periods for samples collected by EPA Method 327 [116] are below the action level, then the corrective action is assumed to have fixed the problem, and the owner and/or operator would have no further obligation for additional corrective action. However, if the delta c for the subsequent sampling periods after initial corrective action is over the action level, then the owner or operator would have to submit a corrective action plan and schedule for implementing design, operation, and maintenance changes to eliminate as quickly as possible and prevent recurrence of the primary cause and other contributing causes to the exceedance of the action level in order to reduce annual average concentrations below the action level. The owner or operator would be required to include the implementation of real-time sampling techniques to locate the primary and other contributing causes of the exceedance in the corrective action plan. While the action level(s) are based on annual average concentrations, once an action level is exceeded, each sampling period that exceeds the action level contributes to the delta c remaining above the action level. An investigation must be conducted following these high biweekly periods to determine the root cause and, if appropriate, to correct the root cause expeditiously in order to bring the annual average delta c below the action level.

Costs associated with fenceline monitoring requirements. We estimated costs to monitor for benzene, 1,3-butadiene, chloroprene, and ethylene dichloride at the fenceline using final rule costs for passive diffusive tube monitoring using the medium model plant costs for the 2015 Petroleum Refinery Sector final rule (80 FR 75178, December 1, 2015) and scaled costs to 2021 dollars. For EtO and vinyl chloride, we estimated fenceline monitoring costs for 8 summa cannisters around the fenceline every 5 days. We also note that there a number of HON facilities that are either collocated with refineries who are already conducting passive diffusion tube fenceline monitoring for benzene as well as some HON facilities under consent decree conducting fenceline monitoring for benzene with passive diffusion tubes, so costs to add laboratory analysis for a second analyte under this action are minimal (*i.e.,* $1,300 more per year) for these facilities, and why monitoring scenario 2 in the table below for the HON is less costly than monitoring scenario 1 even though more facilities fall into the monitoring scenario 2 category. In total for this proposed rulemaking package, we estimate nationwide impacts for fenceline monitoring to be $9,881,000 for total capital investment and $33,310,000 per year for total annualized cost, and estimate that 126 of the 207 HON facilities and 12 of the 19 P&R I facilities would be required to conduct fenceline monitoring as they emit at least one of the six HAP of interest. Tables 26 and 27 provide the breakdown of estimated nationwide costs for fenceline monitoring as applied to all HON and P&R I sources. Note that ten facilities have collocated sources subject to multiple NESHAP (*i.e.,* the HON and P&R I) and would be required to conduct fenceline monitoring under both rules, therefore where this occurred, we assigned costs and included the facility under the SOCMI source category for impacts to avoid double counting. For further information, see the document titled *Clean Air Act Section 112(d)(6) Technology Review for Fenceline Monitoring located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Fenceline Monitoring that are Associated with Processes Subject to Group I Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

[116] The EPA is proposing that three sample periods must remain below the action level for samples taken by EPA Method 327 because three is equal to the number of samples that would be taken during one sample period for EPA Methods 325A/B. Requiring three sample periods also ensures that a sample will have been taken at every monitoring location at the site following the completion of the corrective action.

TABLE 26—NATIONWIDE COST IMPACTS OF FENCELINE MONITORING FOR HON

Monitoring scenario	Number facilities impacted	Monitoring option description	Total capital investment ($)	Total annualized costs (million $/yr)
1	35	Passives only (1 analyte)	4,016,000	2,141,000
2	46	Passives only (2 analytes)	2,295,000	1,282,000
3	9	Cannisters only	115,500	5,366,000
4	16	Cannisters and passives (1 analyte)	1,606,000	10,397,000
5	20	Cannisters and passives (2 analytes)	1,721,000	12,869,000

TABLE 27—NATIONWIDE COST IMPACTS OF FENCELINE MONITORING FOR P&R I

Monitoring scenario	Number facilities impacted	Monitoring option description	Total capital investment ($)	Total annualized costs ($/yr)
1	1	Cannisters and passives (2 analytes)	114,700	659,000
2	1	Cannisters only	12,800	596,000

Additional requirements of the fenceline monitoring program. The EPA is proposing at 40 CFR 63.182(e) that fenceline data be reported on a quarterly basis. Each report would contain the results for each sample where the field portion of sampling is completed by the end of the quarter, as well as for associated field and method blanks (*i.e.,* each report would contain data for at least 6, 2-week sampling periods and 18 canister sampling periods). These data would be reported electronically to the EPA within 45 days of the end of each quarterly period. See section III.E.3 of this preamble for further discussion on electronic reporting and section III.F.1 of this preamble for further discussion on the compliance dates we are proposing.

D. What actions related to CAA section 112(d)(2) and (3) are we taking in addition to those identified in the CAA sections 112(f)(2) and (d)(6) risk and technology reviews and CAA section 111(b)(1)(B) NSPS reviews?

In addition to the proposed actions discussed in this section III.B of this preamble to reduce risk from EtO emission sources (from HON processes) and chloroprene emission sources (from P&R I affected sources producing neoprene), and our proposed actions discussed in this section III.C of this preamble on NESHAP technology reviews, we are also proposing other requirements for the HON, P&R I, and P&R II based on analyses performed pursuant to CAA section 112(d)(2) and (3),[117] and that are consistent with *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008), ensuring that CAA section 112 standards apply continuously. We are proposing to: (1) Add new monitoring and operational requirements for HON and P&R I flares, (2) add work practice standards for periods of SSM for certain HON and P&R I vent streams (*i.e.,* PRD releases, maintenance vents, and planned routine maintenance of storage vessels), (3) clarify regulatory provisions for vent control bypasses for certain HON and P&R I vent streams (*i.e.,* closed vent systems containing bypass lines), (4) add dioxins and furans emission limits to the HON, P&R I, and P&R II, (5) add new monitoring requirements for HON and P&R I pressure vessels, (6) add new emission standards for HON & P&R I surge control vessels and bottoms receivers, (7) revise the applicability threshold for HON transfer racks, (8) add requirements to P&R II for heat exchange systems, and (9) add requirements to P&R II for WSR sources and equipment leaks. See the subsections below for specific details regarding these proposed actions, and for which rules (*i.e.,* HON, P&R I, and/or P&R II) we are proposing these actions.

1. Flares

The EPA is proposing under CAA section 112(d)(2) and (3) to amend the operating and monitoring requirements for flares used as APCDs in the SOCMI and P&R I source categories because we have determined that the current requirements for flares are not adequate to ensure the level of destruction efficiency needed to conform with the MACT standards in the HON and P&R I.[118] As previously mentioned in section III.C.3.b of this preamble, we are also proposing these same operating and monitoring requirements for flares for NSPS subparts IIIa, NNNa, and RRRa under CAA section 111(b)(1)(B). Flares are commonly used within the SOCMI and P&R I source categories. The requirements applicable to flares, which are used to control emissions from various emission sources (*e.g.,* process vents, storage vessels, transfer racks, equipment leaks, wastewater streams), are set forth in the General Provisions to 40 CFR part 63 and are cross-referenced in the HON and P&R I. 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,[119] however, indicate that these General Provision requirements are inadequate to ensure proper performance of flares at refineries and other petrochemical facilities (including SOCMI 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

[117] The EPA has authority under CAA section 112(d)(2) and (3) to set MACT standards for previously unregulated emission points. The EPA also retains the discretion to revise a MACT standard under the authority of CAA section 112(d)(2) and (3) (see *Portland Cement Ass'n* v. *EPA,* 665 F.3d 177, 189 (D.C. Cir. 2011)), such as when it identifies an error in the original standard. See also *Medical Waste Inst.* v. *EPA,* 645 F.3d 420, 426 (D.C. Cir. 2011) (upholding the EPA action establishing MACT floors, based on post-compliance data, when originally-established floors were improperly established).

[118] P&R II sources do not use flares as APCDs as they are making resins from chlorinated chemicals (*i.e.,* epichlorohydrin feedstocks), and chlorinated chemicals are not controlled with flares.

[119] 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.

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. Many HON and P&R I 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 petrochemical plant (*e.g.,* olefins and hydrogen). Given that flares at petrochemical plants, SOCMI facilities, and a polymers and resins plant were also included in the flare dataset that formed the underlying basis of the new standards for refinery flares, we are proposing to apply the finalized suite of operational and monitoring requirements for refinery flares [120] to those flares in the SOCMI source category that control emissions from HON and P&R I processes. Therefore, these proposed amendments at 40 CFR 63.108 (for HON) and 40 CFR 63.508 (for P&R I) will ensure that continuous compliance with the CAA section 112(d)(2) and (3) standards is achieved for HON and P&R I facilities that use flares as APCDs to meet the MACT standards at all times when controlling HAP emissions.

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. We are proposing to revise the General Provisions table to NESHAP subpart F (Table 3) and the General Provisions table to NESHAP subpart U (Table 1), entries for 40 CFR 63.8(a)(4) and 40 CFR 63.11 such that these provisions do not apply to flares because we are proposing to replace these provisions with new standards we are proposing for flares used to comply with the MACT standards in the HON and P&R I.

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.[121] The EPA submitted this report, along with a charge statement and a set of charge questions, to an external peer review panel.[122] 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. 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 document 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).[123] We are also relying on the same analyses and proposing the same operating limits for flares used as APCDs in the SOCMI source category that control emissions from HON processes (hereafter referred to as ''HON flares''). The Agency believes, given the results from the various data analyses conducted for the Petroleum Refinery Sector rule, that the operating limits promulgated for flares used in the petroleum refinery sector are also appropriate and reasonable for HON flares, and will ensure that these flares meet the HAP destruction and removal efficiency at all times. Therefore, we are proposing at 40 CFR 63.108 (for HON processes) and 40 CFR 63.508 (for P&R I processes) to replace all flare requirements throughout the HON [124] and P&R I [125] with the Petroleum Refinery Sector rule flare definitions and requirements in 40 CFR part 63, subpart CC, 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 SOCMI 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 HON and P&R I flares, along with impacts and costs associated with these proposed revisions. Specifically, this action proposes that HON and P&R I flares 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 III.E.1 of this preamble, this action proposes a work practice standard related to the visible emissions during periods when the flare is operated above its smokeless capacity (*e.g.,* periods of emergency flaring). Currently, the MACT standards in the HON and P&R I cross-reference the General Provisions at 40 CFR

[120] See 40 CFR 63.670 and 40 CFR 63.671 (originally finalized in 80 FR 75178 on December 1, 2015; and amended in 81 FR 45232 on July 13, 2016, in 83 FR 60696 on November 26, 2018, and in 85 FR 6064 on February 4, 2020).

[121] 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.

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

[123] See the document 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 document 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 document 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.

[124] Refer to proposed 40 CFR 63.108(a)(1) through (a)(22) for a list of HON provisions that would no longer apply.

[125] Refer to proposed 40 CFR 63.508(a)(1) through (a)(32) for a list of P&R I provisions that would no longer apply.

63.11(b) for the operational requirements for flares used as APCD. 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 used as APCDs in the HON and P&R I standards. We are also proposing to include provisions at 40 CFR 63.110(j) that address compliance with the proposed operating and monitoring requirements for flares in lieu of flare-related requirements of any other 40 CFR part 60, 61, or 63 rule.

a. Pilot Flames

The HON and P&R I reference the flare requirements in 40 CFR 63.11(b), 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 HON and P&R I flares and instead cross-reference 40 CFR part 63, subpart CC, to include in the HON 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 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 63.108 (for HON), 40 CFR 63.508 (for P&R I), and 40 CFR 63.670(b) and (g) for these proposed requirements. See section III.D.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 HON and P&R I reference 40 CFR 63.11(b), 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 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 HON and P&R I flares and instead cross-reference 40 CFR part 63, subpart CC, to include this same 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 HON and P&R I flares whenever regulated material is routed to the flare and also visible emissions monitoring whenever visible emissions are observed from the flare. On days that the flare receives regulated material, we are proposing that owners or operators of HON and P&R I flares 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 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 HON or P&R I flare 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 63.108 (for HON), 40 CFR 63.508 (for P&R I), 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 ($PM_{2.5}$). 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 HON and P&R I flares that we expect will result in owners or operators of CMPUs 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 III.D.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 document 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 HON and P&R I flare 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 exceeds the smokeless capacity of the flare, based on comments the EPA received on the proposed Petroleum Refinery Sector rule. Refer to 40 CFR 63.108 (for HON), 40 CFR 63.508 (for P&R I), 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 HON and P&R I flares 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 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 III.D.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. Finally, 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.

In several of the EPA's previous impact analyses (for petroleum refinery flares and ethylene production flares),[126] the EPA established the number of events in a given time period that would be the ''backstop'' (*i.e.,* a violation of the standard). In each of these analyses, the EPA evaluated four different timing alternatives (2 in 5 years; 2 in 3 years; 3 in 5 years; and 3 in 3 years) based on the number of existing flares evaluated over a 20-year period, and ultimately the EPA concluded that 3 events in 3 years would be ''achievable'' for the average of the best performing flares. We see no reason why this would be any different for HON and P&R I flares. Even if a best-performing flare ''typically'' only has one event every seven years, the fact that these events are random by nature (unpredictable, not under the direct control of the owner or operator) makes it difficult to use a 5-year time span. 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 HON and P&R I flares. The HON and P&R I reference the flare provisions in 40 CFR 63.11(b), 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. Based on data provided to EPA in response to our CAA section 114 request (see section II.C of this preamble), 10 of the 18 flares that HON and P&R I facilities reported using as APCDs are either steam- or air-assisted (see the document titled *Control Option Impacts for Flares Located in the SOCMI Source Category that Control Emissions from Processes Subject to HON and for Flares that Control Emissions from Processes Subject to Group I and Group II Polymers and Resins NESHAPs,* which is available in the docket for this rulemaking). 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 HON and P&R I flares and instead cross-reference 40 CFR part 63, subpart CC, to consolidate the provisions for maximum flare tip velocity into the HON and P&R I as a single equation, irrespective of flare type (*i.e.,* steam-assisted, air-assisted, or non-assisted). Refer to 40 CFR 63.108 (for HON), 40 CFR 63.508 (for P&R I), and 40 CFR 63.670(d), (i), and (k) for these proposed provisions.

Based on analysis conducted for the Petroleum Refinery Sector rule, the EPA identified air-assisted test runs with high flare tip velocities that had high combustion efficiencies (see the document titled *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 HON and P&R I flares, 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 III.D.1.e of this preamble for our rationale for proposing to use a 15-minute block averaging period for determining continuous compliance.

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 HON and P&R I flares 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 SOCMI source category because it only provides an alternative for non-assisted flares with large quantities of hydrogen. Available data indicates that approximately 50 percent of the flares used at HON and P&R I facilities are either steam-assisted or air-assisted, which seems to indicate that approximately 50 percent are non-assisted flares. Instead, we are proposing compliance alternatives that we believe provide a better way for HON and P&R I flares with high hydrogen content to comply with the rule while ensuring proper destruction performance of the flare (see section III.D.1.d of this preamble for the proposed compliance alternatives). Therefore, for non-assisted HON and P&R I flares 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 HON and P&R I reference these provisions, but neither the General Provisions nor the HON or P&R I include specific requirements for monitoring the net heating value of the flare vent gas. Moreover, recent flare testing results indicate that meeting a minimum net heating value limit alone does not address instances when the flare may be

[126] See EPA–HQ–OAR–2010–0682–0793, EPA–HQ–OAR–2010–0682–0794, and EPA–HQ–OAR–2017–0357–0017.

over-assisted because it only considers the net heating value of 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 a preponderance of all HON and P&R I flares 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 HON and P&R I 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 HON and P&R I flares. Refer to 40 CFR 63.108 (for HON), 40 CFR 63.508 (for P&R I), and 40 CFR 63.670I 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 HON and P&R I flares 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 HON and P&R I flares; 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 document titled *Flare Control Option Impacts for Final Refinery Sector* 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 HON and P&R I flares that operate with perimeter assist air. Refer to 40 CFR 63.108 (for HON), 40 CFR 63.508 (for P&R I), 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 the document titled *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), provide 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 HON and P&R I flares 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 HON flares 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 III.D.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 III.D.1.b of this preamble, 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 HON and P&R I flares 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 HON and P&R I flares. 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 HON and P&R I flares 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 document 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 HON and P&R I flares 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 HON and P&R I flares 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 HON and P&R I flares 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 63.108 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 63.108 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

The EPA is also proposing to add requirements into the HON (but not P&R I) for pressure-assisted multi-point flares given that these types of APCD are used to control waste gases from processes subject to the HON during SSM. 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 flare 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 multi-point ground flares (MPGFs), at six facilities used as APCDs in the SOCMI source category that control emissions from HON processes.[127] 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 (similar to 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 III.E.1 of this preamble for additional discussion), proposing requirements for this unique flare type for HON flares is an important consideration given that some facilities currently use them as APCD. Based on our review of recently approved alternative means of emission limitation (AMEL) requests for MPGF and the underlying data analyses that supported those decisions (see section II.D of this preamble), MPGF can achieve reductions in VOC and organic HAP at least equivalent to those from 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[128] 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 (greater than 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 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 SOCMI source category that control emissions from HON processes are operated within the proper envelope to produce a stable flame and achieve high destruction efficiencies at least equivalent to those as the underlying HON MACT standards. Above this level, no flare flameouts are observed, and high combustion/destruction efficiencies at least equivalent to those as the underlying HON MACT standards are achieved. Thus, to that end, we are proposing to not allow use of the ''feed forward'' calculation approach (discussed in section III.D.1.e of this preamble) to demonstrate compliance with the NHVcz limit of 800 Btu/scf.

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,[129] 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 HON 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 at 40 CFR 63.108(i) that owners or operators of MPGF at facilities in the SOCMI source category that control emissions from HON processes: (1) Maintain an NHVcz greater than or equal to 800 Btu/scf over a short averaging period (*i.e.,* 15-minutes); (2) continuously monitor the NHVcz 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 each stage of burners that cross-lights must have at least two pilots with at least one continuously lit and capable of igniting all regulated material

[127] One HON flare was reported as a pressure-assisted ground flare in response to our CAA section 114 request. Based on this information, in addition to information from alternative means of emission limitation requests (see Docket ID No. EPA–HQ–OAR–2014–0738), we estimate there are 6 pressure-assisted MPGF located in the SOCMI source category that control emissions from processes subject to the HON.

[128] 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.

[129] 80 FR 52426, August 31, 2015; 81 FR 23480, April 21, 2016; and 82 FR 27822, June 19, 2017.

that is routed to that stage of burners; (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; [130] 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 HON 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 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) at facilities in the SOCMI source category that control emissions from HON processes. 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 HON facilities. Also, given that some owners and operators of CMPUs are currently operating under an approved AMEL, and these owners and operators are likely to have already installed more sophisticated equipment (*e.g.,* a gas chromatograph) than what is required to comply with these proposed requirements for pressure-assisted multi-point flares, we are proposing that pressure-assisted multi-point flares subject to an approved AMEL may continue to comply with the approved AMEL in lieu of these proposed requirements for pressure-assisted multi-point flares. We also are soliciting comment on whether we should extend allowance of this option to P&R I facilities, as many sources are collocated with HON and may use this same type of control device as a backup. As we are currently unaware of any P&R I facilities using pressure-assisted multi-point flares, we solicit comment whether test data are available for these flare types that control waste gases from P&R I processes.

h. Impacts of the Proposed Flare Operating and Monitoring Requirements

The EPA expects that the newly proposed requirements for flares used as APCDs in the SOCMI source category discussed in this section will affect all flares at HON and P&R I processes. Based on facility responses to our CAA section 114 request, we estimate that there are 345 flares of traditional elevated flare tip designs (*e.g.,* steam-assisted, air-assisted, and non-assisted flare tips) operating at HON CMPUs that receive flare vent gas flow on a regular basis (*i.e.,* other than during periods of SSM). We estimate that there are 31 flares of traditional elevated flare tip designs operating at P&R I EPPUs that receive flare vent gas flow on a regular basis. Also, based on facility responses to our CAA section 114 request and information received from AMEL requests (see section II.D of this preamble), we estimate there are six pressure-assisted MPGF used to control waste gases from processes subject to the HON during SSM. 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 SOCMI 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 rule were estimated based on current vent gas and steam flow data submitted by industry representatives. The results of the impact estimates are summarized in Table 28 of this preamble for Flares in the SOCMI Source Category that control emissions from HON processes including P&R I & II flares collocated with HON processes. The results of the impact estimates are summarized in Table 29 of this preamble for Flares in the SOCMI source category that control emissions from P&R I processes. We note that the requirements for HON and P&R I flares that we are proposing will ensure compliance with the MACT standards in the HON and P&R I when flares are used as an APCD. Because we are not changing the underlying MACT standards in the HON and P&R I, we did 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 HON flares (including from P&R I flares collocated with HON processes) by approximately 4,717 tpy of HAP and 19,325 tpy of VOC; and from P&R I flares (not collocated with HON processes) by approximately 141 tpy of HAP and 564 tpy of VOC. The VOC compounds are non-methane, non-ethane total hydrocarbons. According to the emissions inventory file we used to assess residual risk (see section II.F.1 of this preamble), there are approximately 80 individual HAP compounds included in the emission inventory for flares, but many of these are emitted in trace quantities. Almost half of the HAP emissions from flares are attributable to hexane, benzene, and methanol, followed by 1,3-butadiene and vinyl acetate. For more detail on the impact estimates, see the document titled *Control Option Impacts for Flares Located in the SOCMI Source Category that Control Emissions from Processes Subject to HON and for Flares that Control Emissions from Processes Subject to Group I and Group II Polymers and Resins NESHAPs,* which is available in the docket for this rulemaking. As previously mentioned in section III.C.3.b of this preamble, we are also proposing these same flare operating and monitoring requirements for NSPS subpart IIIa, NNNa, and RRRa under CAA section 111(b)(1)(B).

[130] We are proposing that this burner-to-burner distance is the distance when measured from the center of one burner to the next burner.

TABLE 28—NATIONWIDE COST IMPACTS FOR FLARES IN THE SOCMI SOURCE CATEGORY THAT CONTROL EMISSIONS FROM HON PROCESSES INCLUDING P&R I FLARES COLLOCATED WITH HON PROCESSES

Control description	Total capital investment (million $)	Total annualized costs (million $/yr)
Flare Operational and Monitoring Requirements	323.1	67.8
Work Practice Standards for Flares Operating Above Their Smokeless Capacity	3.34	0.79
Total	326.4	68.7

TABLE 29—NATIONWIDE COST IMPACTS FOR FLARES IN THE SOCMI SOURCE CATEGORY THAT CONTROL EMISSIONS FROM P&R I PROCESSES

Control description	Total capital investment (million $)	Total annualized costs (million $/yr)
Flare Operational and Monitoring Requirements	6.93	1.46
Work Practice Standards for Flares Operating Above Their Smokeless Capacity	0.08	0.02
Total	7.01	1.48

2. PRDs

The HON defines several terms applicable to process vents at 40 CFR 63.101 and 40 CFR 63.107; similarly, P&R I defines several terms applicable to process vents at 40 CFR 63.482. The current HON definition of ''process vent'' excludes a ''relief valve discharge,'' (see 40 CFR 63.107(h)(1)) and the term ''process vent'' in P&R I at 40 CFR 63.482 excludes ''pressure releases.'' Instead, these MACT standards in the HON and P&R I recognize HON relief valve discharges and P&R I pressure releases 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 (to provide clarity, see the end of this section for our proposed revision to the definition of ''pressure relief device'' for the HON and P&R I, our proposed definition of ''relief valve'' for the HON and P&R I, and our proposal to add a definition in P&R II for ''pressure relief device''). 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 discussion that follows within this section of the preamble primarily focuses on the HON and P&R I because any release of HAP to the atmosphere from a P&R II PRD should already be accounted for when determining compliance with the production-based emission rate MACT standard (*e.g.,* pounds HAP per million pounds BLR or WSR produced).

The HON and P&R I currently regulate PRDs when they are seated through equipment leak provisions that are applied only after the pressure release event 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 HON and P&R I follow the EPA's pre-2008 practice of exempting SSM events from otherwise applicable emission standards. Consequently, with PRD releases treated as unplanned, nonroutine, and the result of malfunctions, the HON and P&R I 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. We have previously explained the relationship between this ruling and PRDs in other rulemakings revising section 112 standards (see, *e.g.,* 85 FR 6067, February 4, 2020, and 85 FR 40386, July 6, 2020). Section III.E.1 of this preamble contains additional discussions on the removal of the SSM exemption provision for the SOCMI and P&R I source categories. As a result, we evaluated the MACT standards in the HON and P&R I for PRD HAP releases to the atmosphere to ensure a standard continuously applies during these malfunction events, consistent with the *Sierra Club* 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 HON and P&R I 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 HON and P&R I facilities that vent to a control system and that vent to the atmosphere. Currently, HON and P&R I 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 do not meet the current continuous process vent standards. Therefore, we examined how to regulate PRDs that vent to atmosphere under CAA section 112(d)(2) and (3). CAA section 112(h)(1) states that the Administrator may prescribe a work practice standard or other requirements, 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 to apply when ''the application of measurement technology to a particular class of sources is not practicable due to technological and economic limitations.'' As detailed here, we identified as the MACT level of control work practice standards to regulate PRDs that vent to atmosphere under CAA section 112(h), and are proposing such work practice standards at proposed 40 CFR 63.165(e) (for HON) and proposed 40 CFR 63.502(a)(1) and (a)(2) (which references 40 CFR 63.165, for P&R I) 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 HON or P&R I facility is subject to numeric emission limits for PRDs that vent to the atmosphere.[131] 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 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 CMPUs or EPPUs. Rather, we have identified only monitoring systems capable of alerting an owner or operator when a PRD release occurs. Consequently, we have concluded that it is appropriate to establish a work practice standard for PRDs that vent to the atmosphere as provided in CAA section 112(h).

We also reviewed information about HON and P&R I facilities to determine how the best performers are minimizing emissions from PRDs that vent to the 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 the applicability determinations are 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 at or above specified threshold quantities (listed in appendix A to 29 CFR 1910.119) or a Category 1 flammable gas (as defined in 29 CFR 1910.1200(c)) or flammable liquid with a flashpoint below 100 degrees Fahrenheit. HON and P&R I 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 HON or P&R I 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

[131] As previously mentioned, P&R II is different from the HON and P&R I because P&R II defines a process vent as a ''a point of emission from a unit operation. Typical process vents include condenser vents, vacuum pumps, steam ejectors, and atmospheric vents from reactors and other process vessels.'' As such, P&R II does not exclude PRD releases from its production-based emission rate MACT standard.

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 HON and P&R I 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 at 40 CFR 63.648(j) 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 HON and P&R I facilities may have implemented, we expect that the best performing HON and P&R I 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. In fact, we confirmed this to be true for HON facilities based on facility responses to our CAA section 114 request. We used this information as the basis of the work practice standards that we are proposing at 40 CFR 63.165(e) (for HON) and 40 CFR 63.502(a)(1) and (2) (which references 40 CFR 63.165, for P&R I). 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 can take place within a 3-yr period. Any PRD releases in excess of the limit 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 [132]), 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 actions are conducted effectively. Otherwise, we are proposing that it is a deviation from the work practice standard if a single PRD that vents to the 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 proposed 40 CFR 63.165(e)(3)(v) (for HON) and proposed 40 CFR 63.502(a)(1) and (2) (which references 40 CFR 63.165, for P&R I) for these proposed provisions. Based on our cost assumptions, the nationwide capital cost for complying with the PRD work practice requirements for the HON is $13.7 million and the annualized capital costs is $7.1 million; and for P&R I is $0.41 million and the annualized capital costs is $0.12 million.

In addition, we believe that it is appropriate to exclude certain types of PRDs that have very low/no 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, provided they are subject to other continuously applicable emission standards. Both the Chemical Accident Prevention Provisions and the California petroleum refinery PRD rules also exempt or impose simpler requirements for certain PRDs. We are proposing at 40 CFR 63.165(e)(5) (for HON) and 40 CFR 63.502(a)(1) and (2) (which references 40 CFR 63.165, for P&R I) that the following types of PRDs would not be subject to the work practice standard for PRDs that vent to the atmosphere, but instead would be covered by other continuously applicable emission standards:[133] (1) PRDs in heavy liquid service; (2) PRDs that are designed solely to release due to liquid thermal expansion; (3) PRDs on mobile equipment, and (4) pilot-operated and balanced bellows PRDs if the primary release valve associated with the PRD is vented through a closed vent system to a control device or back into the process, to the fuel gas system, or to a drain system. Each of the types of PRDs that we are proposing would not be subject to the work practice standard are discussed in greater detail here. With regard to PRDs in heavy liquid service, any HAP release to the atmosphere 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 need not be additionally subject to the work practice standard. In addition, we are proposing that PRDs designed solely to release due to liquid thermal expansion would not be 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) would not be subject to the work practice standard, if the primary release valve associated with the pilot-operated or balanced bellows PRD is vented through a closed vent system to a control device or back into the process, to the fuel gas system, or to a drain 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 PRDs 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

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

[133] Pursuant to 40 CFR 63.165(a), each pressure relief device in organic HAP gas or vapor service must continue to be operated with an instrument reading of less than 500 ppm above background.

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 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 63.165(e)(3) (for HON) and 40 CFR 63.502(a)(1) and (2) (which references 40 CFR 63.165, for P&R I) 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 the 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 for the HON is $3.1 million and the annualized capital costs are $0.41 million; and for P&R I is $0.09 million and the annualized capital costs are $0.01 million.

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. For example, the EPA estimated that the capital cost for controlling MON PRDs ranged from $2,540 million to $5,070 million, and the annualized cost ranged from $330 million to $660 million; and the incremental cost effectiveness for requiring control of all MON PRDs that vent to the atmosphere compared to the requirements described above exceeded $80 million per ton of HAP reduced (see 84 FR 69182, December 17, 2019). 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 63.165(e)(8) (for HON) and 40 CFR 63.502(a)(1) and (2) (which references 40 CFR 63.165, for P&R I) to require future installation and operation of non-flowing pilot-operated PRDs at all affected sources.

We are also proposing at 40 CFR 63.101 (for HON) and 40 CFR 63.482 (for P&R I) to clarify the definitions of ''pressure release,'' ''pressure relief device,'' and ''relief valve.'' 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. For clarity, we are also proposing for P&R II the same definition of ''pressure relief device'' that we are proposing for the HON and P&R I because P&R II currently does not define this term. Although we are not proposing for P&R II the same work practice standard for PRDs that vent to the atmosphere that we are proposing for the HON and P&R I (because as explained earlier in this section of the preamble any release of HAP to the atmosphere from a P&R II pressure relief device should already be accounted for when determining compliance with the production-based emission rate MACT standard), we are proposing at 40 CFR 63.527(f) and 40 CFR 63.528(a)(6), that owners and operators keep records and report the start and end time and date of each pressure release to the atmosphere, an estimate of the mass quantity in pounds of each organic HAP released, as well as any data, assumptions, and calculations used to estimate of the mass quantity of each organic HAP released during the event. These proposed records and reports for P&R II will assist stakeholders in determining compliance with the production-based emission rate MACT standard.

We solicit comment on all of the proposed revisions for PRDs. See the document titled *Review of Regulatory Alternatives for Certain Vent Streams in the SOCMI Source Category that are Associated with Processes Subject to HON and Processes Subject to Group I and Group II Polymers and Resins NESHAPs,* in the docket for this rulemaking for details on the assumptions and methodologies used in this analysis.

3. 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 HON and P&R I require 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. 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 63.114(d)(2) for more details). To ensure standards apply to HON and P&R I emission sources at all times, we are proposing at 40 CFR 63.114(d)(3), 40 CFR 63.127(d)(3), 40 CFR 63.148(f)(4), and 40 CFR 63.172(j)(4) (for HON), and 40 CFR 63.485(x), 40 CFR 63.489(d)(3), and 40 CFR 63.502(a)(2) (for P&R I) that an owner or operator may not bypass the APCD at any time, that a bypass is a violation (see proposed 40 CFR 63.118(a)(5) and (f)(7), 40 CFR 63.130(a)(2)(iv), (b)(3), and (d)(7), 40 CFR 63.148(i)(3)(iii) and (j)(4), Tables 3, 7, and 20 to 40 CFR 63, subpart G, 40 CFR 63.181(g)(3)(iii), and 40 CFR 63.182(d)(xix) (for HON), and 40 CFR 63.485(x), 40 CFR 63.489(d)(3), and 40 CFR 63.502(a)(2) (for P&R I)), and owners and operators must 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. These requirements are consistent with CAA section 112(d) controls and reflect the MACT floor. We did not identify any additional options beyond this (*i.e.,* beyond-the-floor options) for minimizing emissions from closed-vent systems that are used to comply with the emission standards. We are also proposing that the use of a cap, blind flange, plug, or second valve on an OEL (following the requirements specified in 40 CFR 60.482–6(a)(2), (b), and (c) or following requirements codified in another regulation that are the same as 40 CFR 60.482–6(a)(2), (b), and (c)) is sufficient to prevent a bypass. We solicit comment on these proposed revisions.

4. Maintenance Activities

The EPA is proposing that emission limits apply at all times consistent with *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008). 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). CAA section 112(h)(1) states that the Administrator may prescribe a work practice standard or other requirements, 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. We are proposing work practices instead of numeric emission limits for maintenance activities because it is ''not feasible to prescribe or enforce an emission standard'' for these emissions. Maintenance activities are not ''emitted through a conveyance designed and constructed to emit or capture such pollutant'' (see CAA section 112(h)(2)(A)) and it is not possible to characterize each of these potential release points. The discussion that follows within this section of the preamble primarily focuses on the HON and P&R I because any release to the atmosphere from P&R II maintenance activities should already be accounted for when determining compliance with the production-based emission rate MACT standard (*e.g.,* pounds HAP per million pounds BLR or WSR produced).

a. Equipment Openings (Excluding Storage Vessel Degassing)

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 LEL and the mass of gas that may be emitted. These requirements are consistent with CAA section 112(d) controls and reflect the level of performance analogous to a MACT floor. Therefore, we are proposing a work practice standard at 40 CFR 63.113(k)(1)(i) (for HON), and at 40 CFR 63.485(x) and 40 CFR 63.487(i)(1)(i) (for P&R 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 63.113(k)(1)(ii) (for HON), and at 40 CFR 63.485(x) and 40 CFR 63.487(i)(1)(ii) (for P&R I), 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 63.113(k)(1)(iii) (for HON), and at 40 CFR 63.485(x) and 40 CFR 63.487(i)(1)(iii) (for P&R I), 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 63.113(k)(1)(iv) (for HON), and at 40 CFR 63.485(x) and 40 CFR 63.487(i)(1)(iv) (for P&R I), 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 did not identify any additional options beyond those identified above (*i.e.,* beyond-the-floor options) for controlling emissions from equipment openings.

We expect that all HON and P&R I facilities already have standard procedures in place when performing equipment openings (at the very least for safety reasons). 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. For the HON, we calculated the annual costs to be $94,250 per year. For P&R I, we calculated the annual costs to be $8,650 per year. We solicit comment on the proposed revisions related to maintenance activities. For additional details and discussion, see the document titled *Review of Regulatory Alternatives for Certain Vent Streams in the SOCMI Source Category that are Associated with Processes Subject to HON and Processes Subject to Group I and Group II Polymers and Resins NESHAPs,* which is available in the docket for this rulemaking. As previously mentioned in section III.C.3.b of this preamble, we are also proposing these same maintenance vent standards for NSPS subpart IIIa, NNNa, and RRRa under CAA section 111(b)(1)(B).

b. Storage Vessel Degassing

With the proposed removal of SSM requirements, a standard specific to storage vessel degassing does not exist when storage vessels are using control devices to comply with the requirements in 40 CFR 63.119(a)(2) (for HON) and 40 CFR 63.484(a) (for P&R I, which references 40 CFR 63.119). We acknowledge that storage vessel degassing is similar to maintenance vents (*e.g.,* equipment openings) and that there must be a point in time when the storage vessel can be opened and any emissions vented to the atmosphere. We reviewed available data to determine how the best performers are controlling storage vessel degassing emissions.

We are aware of three regulations regarding storage vessel degassing, two in the state of Texas and the third for the SCAQMD in California. Texas has degassing provisions in the TAC[134] and through permit conditions,[135] while Rule 1149 contains the SCAQMD degassing provisions.[136] The TAC requirements are the least stringent and require control of degassing emissions until the vapor space concentration is less than 35,000 ppmv as methane or 50 percent of the LEL. The Texas permit conditions require control of degassing emissions until the vapor space concentration is less than 10 percent of the LEL or until the VOC concentration is less than 10,000 ppmv, and SCAQMD Rule 1149 requires control of degassing emissions until the vapor space concentration is less than 5,000 ppmv as methane. The Texas permit conditions requiring compliance with 10 percent of the LEL and SCAQMD Rule 1149 control requirements are considered equivalent because 5,000 ppmv as methane equals 10 percent of the LEL for methane.

HON and P&R I facilities located in Texas are subject to the permit conditions, but no HON or P&R I facility is subject to the SCAQMD rule. Of the 207 currently operating HON facilities, 78 are in Texas (four of which are collocated with P&R I processes). Of the 19 currently operating P&R I facilities, 6 are in Texas (including the four collocated with HON processes). Therefore, the Texas permit conditions relying on storage vessel degassing until 10 percent of the LEL is achieved reflect what the best performers have implemented for storage vessel degassing, and we considered this information as the MACT floor for both new and existing HON and P&R I sources.

We reviewed Texas permit condition 6 (applicable to floating roof storage vessels) and permit condition 7 (applicable to fixed roof storage vessels) for key information that could be implemented to form the basis of a standard for storage vessel degassing. The Texas permit conditions require control of degassing emissions for floating roof and fixed roof storage vessels until the vapor space concentration is less than 10 percent of the LEL. The permit conditions also specify that facilities can also degas a storage vessel until they meet a VOC concentration of 10,000 ppmv, but we do not consider 10,000 ppmv to be equivalent to or as stringent as the compliance option to meet 10 percent of the LEL and are not including this as a compliance option. We also do not expect the best performers would be using this concentration for compliance because the Texas permit conditions allow facilities to calibrate their LEL monitor using methane. Storage vessels may be vented to the atmosphere once the storage vessel degassing concentration threshold is met (*i.e.,* less than 10 percent of the LEL) and all standing liquid has been removed from the vessel to the extent practicable. We are proposing that these requirements are considered MACT floors for both new and existing HON and P&R I sources; therefore, we are proposing these requirements at 40 CFR 63.119(a)(6) (for HON) and 40 CFR 63.484(a) and (t) (which references 40 CFR 63.119, for P&R I). Additionally, in petitions for reconsideration that the EPA recently received on the MON, EMACT standards, the Petroleum Refinery Sector rule, and OLD NESHAP, petitioners asserted that it is necessary to make connections to a temporary control device to control the floating roof storage vessel degassing emissions, which may require opening the storage vessel to make these connections. While we do not believe the current language precludes a facility from taking this step, we are revising the standard to include related language for clarity. Therefore, we are proposing that a floating roof storage vessel may be opened prior to degassing to set up equipment (*i.e.,* make connections to a temporary control device), but this must be done in a limited manner and must not actively purge the storage vessel while connections are made.

We calculated the impacts due to controlling storage vessel degassing emissions by evaluating the population of storage vessels that are subject to control under 40 CFR 63.119(a)(2) (for HON) and 40 CFR 63.484(a) (for P&R I, which references 40 CFR 63.119), and not located in Texas. Storage vessels regulated by the HON or P&R I in Texas would already be subject to the degassing requirements, and there would not be additional costs or emissions reductions for these facilities. We estimated there are an average of four Group 1 HON storage vessels per CMPU and two Group 1 P&R I storage vessels per EPPU. We applied these counts to the number of HON and P&R I processes that are not located in Texas, resulting in 1,580 HON storage vessels and 26 P&R I storage vessels newly applicable to vessel degassing requirements. Based on a review of facility responses to our CAA section 114 request, most storage vessels are degassed an average of once every 13 years. Using this average and the population of storage vessels that are not in Texas, we estimated 122 HON storage vessel degassing events and two P&R I storage vessel degassing events would be newly subject to control each year. Controlling HON storage vessel degassing would reduce HAP emissions by 106 tpy, with a total annual cost of approximately $751,500. Controlling P&R I storage vessel degassing would reduce HAP emissions by 1.70 tpy, with

[134] See 30 TAC Chapter 115, Subchapter F, Division 3, available at *https://texreg.sos.state.tx.us/public/readtac%24ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=115&sch=F&div=3&rl=Y.*

[135] See *https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/mss/chem-mssdraftconditions.pdf.*

[136] *See http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1149.pdf.*

a total annual cost of approximately $12,300. See the document titled *Degassing Cost and Emissions Impacts for Storage Vessels Located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Storage Vessels Subject to Either the Group I Polymers and Resins NESHAP or Group II Polymers and Resins NESHAP,* which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in this analysis. We also considered options beyond-the-floor, but we did not identify and are not aware of storage vessel degassing control provisions more stringent than those discussed above and being proposed in this rule; therefore, no beyond-the-floor option was evaluated.

c. Planned Routine Maintenance for Storage Vessels

Although the HON and P&R I currently allow owners and operators to disconnect the fixed roof vessel vent from the closed vent system and control device, fuel gas system, or process equipment for up to 240 hours per year during planned, routine maintenance (see 40 CFR 63.119(e)(3) through (5) (for HON) and 40 CFR 63.484(a) (for P&R I)), we are proposing at 40 CFR 63.119(e)(7) that owners and operators would not be permitted to fill the storage vessel during these periods (such that the vessel would emit HAP to the atmosphere for a limited amount of time due to breathing losses only). The removal of the 240-hr exemption provisions except for vessel breathing losses is based upon our position that removal is needed to satisfy *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008). These requirements are consistent with CAA section 112(d) controls and reflect the MACT floor, as all working loss emissions from storage vessels would be controlled during these periods, ensuring a CAA section 112 standard is in place at this time. We note that in 2018, the EPA finalized these same work practice standards for the Amino/Phenolic Resins NESHAP (83 FR 51842, October 15, 2018). To evaluate the impacts of this proposed change to the HON and P&R I, we assumed owners and operators would install a secondary control device system (to control emissions from vessels during periods of planned routine maintenance of the primary control device) and that activated carbon canisters would be chosen as the method of control. Based on vendor quotes, we determined that the total capital cost of a 55-gallon activated carbon drum with two connections, including piping and duct work, is approximately $1,040. Following the guidelines of the EPA's Seventh Edition OAQPS Control Cost Manual,[137] we estimate that the annual cost per CMPU or EPPU is $180. We also used information about fixed roof storage vessels (including stored materials) that industry provided to EPA in response to our CAA section 114 request (see section II.C of this preamble). We estimate that there could be up to 4 fixed roof storage vessels per CMPU requiring emissions control under the HON. We multiplied this estimate (4) by the total HON processes nationwide (634) and approximated that there are 2,536 fixed roof storage vessels requiring emissions control under the HON nationwide. For P&R I, we assumed that each P&R I facility has two fixed roof storage vessels per EPPU that are subject to control.[138] We also assumed that each facility has one P&R process. Using these assumptions, we approximated that there are 38 fixed roof storage vessels requiring emissions control under P&R I nationwide. We then estimated that the highest amount of HAP emissions that would be expected to occur from a HON or P&R I fixed roof storage vessel during the 240 hours of planned routine maintenance would be 19.3 pounds, if the emissions are not controlled. These emissions were based on the largest vessel capacity and highest vapor pressure material stored in a vessel that was reported in response to our CAA section 114 request, and estimated using the emission estimation procedures from Chapter 7 of EPA's Compilation Of Air Pollutant Emission Factors,[139] assuming that only breathing losses would occur during this period. We assumed that activated carbon canisters would achieve a 95 percent reduction in HAP emissions, which would reduce emissions per vessel by 18.3 lbs HAP. Based on our cost and emissions assumptions, the nationwide capital cost for removal of the 240-hr exemption provisions (except for vessel breathing losses) for the HON is $2.64 million and the annualized capital costs is $0.46 million; and for P&R I is $0.04 million and the annualized capital costs is about $0.01 million. See the document titled *Cost and Emissions Impacts for 240 Hour Planned Routine Maintenance Work Practice Standard on Storage Vessels Located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Storage Vessels Subject to the Group I Polymers and Resins NESHAP,* which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in this analysis.

As a beyond-the-floor control option, we considered requiring owners and operators to also control breathing losses from storage vessels during periods of planned routine maintenance of the emission control system. However, this option is expected to be not cost effective. For example, the EPA estimated a cost of $62,400 per ton of HAP emissions reduced in their analysis conducted for this same option in the Amino/Phenolic Resins NESHAP (82 FR 40103, August 24, 2017).

5. Dioxins and Furans Emission Limits

The HON, P&R I, and P&R II do not currently regulate emissions of polychlorinated dibenzo-p-dioxins (dioxins) and polychlorinated dibenzofurans (furans). Dioxins and furans can be formed when chlorinated compounds are present and combusted in, for example, a thermal oxidizer. HON facilities that release dioxins and furans include those that manufacture chlorinated SOCMI chemicals (*e.g.,* chloroform, chloroprene, ethylene dichloride, methyl chloride, trichloroethylene, vinyl chloride). While the HON has 207 facilities and 634 CMPUs, we estimated that at least 18 HON facilities and 34 CMPUs manufacture these chlorinated compounds and would have emissions of dioxins and furans. As neoprene production facilities and epichlorohydrin elastomer facilities in P&R I use, produce, or emit chlorinated chemicals and all P&R II facilities use epichlorohydrin as a feedstock, they can also produce and emit dioxins and furans through combustion controls. Since dioxins and furans are currently an unregulated pollutant in these NESHAP, we are proposing dioxins and furans MACT standards under CAA section 112(d)(2) and (3) for the HON, P&R I, and P&R II.

The MACT standard setting process starts with determining the level of HAP emissions limitation that is currently achieved by the best-controlled similar source (for new source standards) or by the average of the best-performing

[137] Air Pollution Control Cost Manual—Section 3: VOC Controls; Section 3.1: VOC Recapture Controls, Carbon Adsorbers Calculation Spreadsheet. Retrieved from *https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution.* October 2018.

[138] This assumption is based on the median between four and zero because our HON average is four, and the one facility that received the CAA section 114 request and is subject to both the HON and P&R I, reported zero Group 1 storage vessels subject to P&R I.

[139] Compilation of Air Pollutant Emission Factors. Volume 1: Stationary Point and Area Sources. AP–42, Fifth Edition. Chapter 7: Liquid Storage Tanks. Office of Air Quality Planning and Standards, Research Triangle Park, NC.

sources (for existing source standards). Specifically for categories with 30 or more sources, the MACT floor for existing sources must be at least as stringent as the average emissions limitation achieved by the best performing 12 percent of existing sources for which the EPA has emissions information. For source categories with fewer than 30 sources, the MACT floor for existing sources is the average emission limitation achieved by the best performing five sources. See CAA sections 112(d)(2)–(3)(A) and (B). We applied the upper prediction limit (UPL) and information on the RDL to calculate the MACT floor. Once the UPL is calculated for new sources and existing sources, the UPL must be compared to the three times the RDL value as a final step to assess variability. If the three times the RDL value is greater than the UPL, then three times the RDL is selected as the MACT floor emission level.

Dioxins and furans stack test data are available for nine HON facilities, and we assessed this data to conduct our MACT analyses and develop the emission limits for the HON sources. Multiple stack tests included values below the detection level for certain dioxins and furans congeners. Therefore, we evaluated the RDL and calculated a three times the RDL value of 0.054 ng/dscm at 3 percent oxygen (toxic equivalency basis). Since the HON has well over 30 sources (*i.e.,* 634 CMPUs), we calculated the existing source UPL using data from the top two facilities (*i.e.,* nine times 12 percent rounds up to two) and calculated the new source UPL using data from the best performer. The existing source UPL was calculated as 0.032 ng/dscm at 3 percent oxygen (toxic equivalency basis) and the new source UPL equaled 0.031 ng/dscm at 3 percent oxygen (toxic equivalency basis). For both existing sources and new sources, the three times the RDL value for dioxins and furans was greater than the calculated UPL. As such, we are proposing at 40 CFR 63.113(a)(5) that the dioxins and furans emissions limit for HON facilities is the three times the RDL value of 0.054 ng/dscm at 3 percent oxygen (toxic equivalency basis). To ensure compliance with this limit, we are proposing performance testing requirements that include the use of Method 23 of 40 CFR part 60, appendix A–7 at 40 CFR 63.116(h). We are also proposing a definition for the term ''dioxins and furans'' at 40 CFR 63.101 to mean total tetra—through octachlorinated dibenzo-p-dioxins and dibenzofurans. Finally, we are proposing owners and operators comply with the same monitoring, recordkeeping, and reporting requirements that are already required for compliance with the current process vent standards. We did not identify additional controls or perform a beyond-the-floor analysis for reducing dioxins and furans emissions further because the proposed emission limit is based on the detection limit of the method and represents the lowest concentration of dioxins and furans that can be measured; therefore no further reductions can be achieved that are measurable. We solicit comment on the proposed standards for dioxins and furans for the HON, P&R I, and P&R II. For details on the emission limit calculations, see the document titled *Dioxins and Furans MACT Floor in the SOCMI Source Category for Processes Subject to HON and Processes Subject to Group I and Group II Polymers and Resins NESHAPs,* which is available in the docket for this rulemaking.

Dioxins and furans stack test data are not available for P&R I and P&R II facilities, and in our review of reported emissions inventories, none of these facilities reported emissions of these pollutants from these source categories. However, given that neoprene production facilities and epichlorohydrin facilities in P&R I and all facilities in P&R II have chlorinated chemicals that could be controlled with combustion controls, the mechanism of formation of dioxins and furans is the same as for HON sources controlling chlorinated SOCMI chemicals. Given that no facilities are reporting emissions of these pollutants in their inventories, we believe that the best performing sources that would constitute the MACT floor would have emissions below three times the RDL, which would be the lowest MACT emission standard the EPA would set due to measurement limitations. Thus, we are proposing dioxins and furans emissions limits for P&R I and P&R II facilities using, producing, or emitting chlorinated chemicals that are the same as we are proposing for the HON (*i.e.,* 0.054 ng/dscm at 3 percent oxygen, toxic equivalency basis). We are proposing the dioxins and furans emission limit for P&R I at 40 CFR 63.485(x) (which points to 40 CFR 63.113(a)(5) for continuous front-end process vents) and 40 CFR 63.487(a)(3) and (b)(3) (for batch front-end process vents); and the P&R II emission limit at 40 CFR 63.523(e) (for process vents associated with each existing, new, or reconstructed affected BLR source), 40 CFR 63.524(a)(3) (for process vents associated with each existing affected WSR source), and 40 CFR 63.524(b)(3) (for process vents associated with each new or reconstructed affected WSR source). To ensure compliance with the proposed limit, we are proposing performance testing requirements that include the use of Method 23 of 40 CFR part 60, appendix A–7 at 40 CFR 63.485(x) (which points to 40 CFR 63.116(h) for P&R I continuous front-end process vents) and 40 CFR 63.490(g) (for P&R I batch front-end process vents) and 63.525(m) (for P&R II sources). We are also proposing a definition for the term ''dioxins and furans'' at 40 CFR 63.482 (for P&R I sources) and 40 CFR 63.522 (for P&R II sources) to mean total tetra—through octachlorinated dibenzo-p-dioxins and dibenzofurans. Finally, we are proposing owners and operators comply with the same monitoring, recordkeeping, and reporting requirements that are already required for compliance with the current process vent standards. We solicit comment on the types of emission controls used and stack test data for emissions of dioxins and furans from the P&R I and P&R II source categories.

To evaluate the cost impacts of the proposed emissions limits, we assumed select facilities would install a condenser prior to the existing control device (*e.g.,* thermal oxidizer) to remove chlorinated compounds from the stream and prevent the formation of dioxins and furans in the thermal oxidizer. Of the nine HON facilities with stack test data, two facilities do not meet the proposed emission limit and would need to install a condenser to reduce dioxins and furans emissions.[140] For the twelve HON facilities that do not have stack test data available, we assumed that five facilities would not meet the emission limits and would need to install a condenser to reduce their emissions. We assumed the one P&R I facility with dioxins and furans emissions in the risk modeling file and all five P&R II facilities would need to install a condenser to meet the dioxins and furans emissions limit. Based on our cost assumptions, the nationwide costs to comply with the dioxins and furans emissions limits are $3.9 million in capital costs and $2.3 million in annual costs for the HON; $0.56 million in capital costs and $0.33 million in annual costs for P&R I; and $2.8 million

[140] Note that four facilities do not meet the dioxins and furans emission limit in our dataset, however two of the four facilities are subject to 40 CFR part 63, subpart HHHHHHH, and are complying with a 0.051 ng/dscm at 3 percent oxygen, toxic equivalency basis, limit for PVC-combined process vents and are using the same control device for emissions from HON processes.

in capital costs and $1.6 million in annual costs for P&R II.

We solicit comment on all aspects of the proposed emissions limits for dioxins and furans. See the document titled *Dioxins and Furans MACT Floor in the SOCMI Source Category for Processes Subject to HON and Processes Subject to Group I and Group II Polymers and Resins NESHAPs,* which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in the analyses.

6. Pressure Vessels

We are proposing new requirements for pressure vessels that are associated with processes subject to the HON or P&R I. The EPA is proposing to define pressure vessel at 40 CFR 63.101 (for HON) and 40 CFR 63.482 (for P&R I) to mean ''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.'' To eliminate any ambiguity in applicability or control requirements, the EPA is also proposing 40 CFR 63.101 (for HON) and 40 CFR 63.482 (for P&R I) to remove the exemption for ''pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere'' from the definition of storage vessel.[141] This long-standing exemption is ambiguous with respect to what ''without emissions to the atmosphere'' means. For example, most pressure vessels have relief devices that allow for venting when pressure exceeds setpoints. In many cases, these vents are routed to control devices; however, control devices are not completely effective (*e.g.,* achieve 98 percent control), and therefore there are emissions to the atmosphere from these pressure vessels, even if they are controlled. There are also instances where other components in pressure systems may allow for fugitive releases because of leaks from fittings or cooling systems. All of these events arguably are ''emissions to the atmosphere'' and therefore it is likely that even if this exemption were maintained, owners and operators of pressure vessels would still have uncertainty regarding whether or not they were subject to substantive requirements. Therefore, the proposed revisions remove the ambiguity associated with the exemption and set standards intended to limit emissions to the atmosphere from pressure vessels. Given that we have seen large emission events from PRDs on pressure vessels (*e.g.,* a 155 tpy 1,3-butadiene atmospheric PRD release was documented from a HON pressure vessel in 2015),[142] we are also proposing at 40 CFR 63.119(a)(7)(v) and 40 CFR 63.484(t) that any atmospheric PRD release from a pressure vessel is a deviation of the PRD work practice standards (see section III.D.2 of this preamble for more information on the proposed PRD work practice standards).

We are proposing LDAR requirements at 40 CFR 63.119(a)(7) (for HON) and 40 CFR 63.484(t) (for P&R I) that are based on similar no-detectable emission requirements required for closed vent systems in most chemical sector NESHAP. These requirements are consistent with CAA section 112(d) controls and reflect the MACT floor. As such, these proposed requirements impose a standard that requires no detectable emissions at all times (*i.e.,* would be required to meet a leak definition of 500 ppm at each point on the pressure vessel where total organic HAP could potentially be emitted); require initial and annual leak monitoring using EPA Method 21 of 40 CFR part 60, Appendix A–7; and require routing organic HAP through a closed vent system to a control device (*i.e.,* no releases to the atmosphere through a pressure vessel's PRD). The proposed standards recognize that pressure vessels can be designed with appropriate capture and containment systems for leak interfaces and pressure vessel PRDs such that the owner or operator can avoid ''willful'' deviations. We also did not identify any additional options beyond those identified above (*i.e.,* beyond-the-floor options) for minimizing emissions to the atmosphere from pressure vessels.

Based on facility responses to our CAA section 114 request, we estimate that there could be up to one pressure vessel per every two CMPUs for a total of 317 pressure vessels requiring emissions control under the HON nationwide (1 pressure vessel per 2 CMPUs × 634 CMPUs = 317 pressure vessels). We also estimate that there are nine P&R I facilities that each have one pressure vessel (for a total of nine pressure vessels requiring emissions control under P&R I nationwide) given that: (1) We are aware of three P&R I facilities within the polybutadiene rubber source category that each have a pressure vessel, (2) there are five P&R I facilities that make styrene butadiene rubber and are therefore likely to each have one 1,3-butadiene pressure vessel, and (3) we are aware of one other pressure vessel (storing EtO) located at a P&R I facility producing epichlorohydrin elastomer. Using information from a 2012 analysis that identified developments for storage vessels at chemical manufacturing facilities and petroleum refineries,[143] we estimate a total HAP emission reduction of 244 tpy for all affected pressure vessels associated with processes subject to the HON and 6.9 tpy HAP for pressure vessels subject to P&R I; the nationwide capital cost for the proposed pressure vessel LDAR requirements for the HON is about $78,000 and the annualized capital costs is $73,000, and for P&R I the nationwide capital cost is $2,200 and the annualized capital costs is about $2,000. See the document titled *Cost and Emissions Impacts for Pressure Vessels Located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Pressure Vessels Subject to the Group I Polymers and Resins NESHAP,* which is available in the docket for this rulemaking, for details on the assumptions and methodologies used in this analysis. We solicit comment on the proposed revisions for pressure vessels.

7. Surge Control Vessels and Bottoms Receivers

The HON and P&R I define a surge control vessel to mean feed drums, recycle drums, and intermediate vessels. Surge control vessels are used within a CMPU or an EPPU when in-process storage, mixing, or management of flow rates or volumes is needed to assist in production of a product. The HON and P&R I define a bottoms receiver as a tank that collects distillation bottoms before the stream is sent for storage or for further downstream processing. Surge control vessels and bottoms receivers are not considered storage vessels under the HON and P&R I because they are covered by the equipment leak provisions. Although these emissions sources are regulated under the equipment leak provisions (*i.e.,* NESHAP subpart H), the equipment leak requirements point back to the storage vessel requirements in NESHAP subpart G. Owners and operators of surge

[141] We note that P&R II does not have a pressure vessel exemption in its definition of storage tank (see 40 CR 63.522).

[142] See the Appendix to the document titled *Cost and Emissions Impacts for Pressure Vessels Located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Pressure Vessels Subject to the Group I Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

[143] Randall, 2012. Memorandum from Randall, D., RTI International to Parsons, N., EPA/OAQPS. *Survey of Control Technology for Storage Vessels and Analysis of Impacts for Storage Vessel Control Options.* January 20, 2012. EPA Docket No. EPA–HQ–OAR–2010–0871.

control vessels and bottoms receivers are required to comply with the HON storage vessel requirements in NESHAP subpart G (*i.e.,* use a floating roof or route emissions to closed vent system and control to get 95 percent control) provided the surge control vessel or bottoms receiver meets certain capacity and vapor pressure requirements. For HON and P&R I surge control vessels and bottoms receivers at existing sources, storage vessel control requirements apply if the capacity is between 75 m^3 and 151 m^3 and the MTVP is greater than or equal to 13.1 kPa, or the capacity is greater than or equal to 151 m^3 and the MTVP is greater than or equal to 5.2 kPa. For HON and P&R I surge control vessels and bottoms receivers at new sources, storage vessel control requirements apply if the capacity is between 38 m^3 and 151 m^3 and the MTVP is greater than or equal to 13.1 kPa, or the capacity is greater than or equal to 151 m^3 and the MTVP is greater than or equal to 0.7 kPa. The HON and P&R I exclude all other surge control vessels and bottoms receivers from emissions control requirements.

We are proposing at 40 CFR 63.170(b) (for HON) and 40 CFR 63.485(d) (for P&R I) that owners and operators of all surge control vessels and bottoms receivers that emit greater than or equal to 1.0 lb/hr of total organic HAP would be required to reduce emissions of organic HAP using a flare meeting the proposed operating and monitoring requirements for flares (see section III.D.1 of this preamble); or reduce emissions of total organic HAP or TOC by 98 percent by weight or to an exit concentration of 20 ppmv, whichever is less stringent. These requirements are consistent with CAA section 112(d) controls and reflect the MACT floor.[144] Emissions from surge control vessels and bottoms receivers are characteristic of process vents, not emissions from storage vessels. These vessels operate at process temperatures, not ambient storage temperatures; typically do not undergo level changes that larger storage vessels undergo; and are most often operated under pressure with and without non-condensable gases flowing into and out of them. The size of these vessels is also typically not correlated with emissions, as are storage vessels. We did not identify any additional options beyond those identified above (*i.e.,* beyond-the-floor options) for controlling emissions from surge control vessels and bottoms receivers. We solicit comment on the proposed revisions for surge control vessels and bottoms receivers.

8. Transfer Operations (for HON)

Generally, transfer operations refer to the equipment (*e.g.,* transfer racks) that are used to transfer materials (primarily liquid products) from the facility, typically from storage vessels, into transport vehicles, portable cargo units, and marine vessels that are used to carry the material to another site or location. The combination of the transfer rack, storage vessel, connecting piping, and equipment used/on the connecting piping are typically part of the process unit or affected source in existing regulations. The HON regulates transfer operations at 40 CFR 63.126 through 40 CFR 63.130. Transfer operations are defined in the HON at 40 CFR 63.101 to mean the loading, into a tank truck or railcar, of organic liquids that contain one or more of the organic HAP listed in table 2 to NESHAP subpart F from a transfer rack; and transfer operations do not include loading at an operating pressure greater than 204.9 kPa. Transfer racks are also defined in the HON at 40 CFR 63.101. Under the HON, transfer racks mean the collection of loading arms and loading hoses, at a single loading rack, that are assigned to a CMPU subject to NESHAP subpart F according to the procedures specified in 40 CFR 63.100(h) and are used to fill tank trucks and/or railcars with organic liquids that contain one or more of the organic HAP listed in table 2 to NESHAP subpart F. A transfer rack includes the associated pumps, meters, shutoff valves, relief valves, and other piping and valves, but does not include: (1) Racks, arms, or hoses that only transfer liquids containing organic HAP as impurities; (2) racks, arms, or hoses that vapor balance during all loading operations; or (3) racks transferring organic liquids that contain organic HAP only as impurities.

In general, when the equipment and operations are physically separate (*i.e.,* do not share common piping, valves, and other equipment), the transfer racks are considered separate transfer racks. Transfer rack emissions depend on several factors, including the physical and chemical characteristics of the liquid being loaded, the quantity of material loaded, and the loading conditions. Primarily, these characteristics boil down to the volatility (or vapor pressure) and molecular weight of the liquid being transferred, the temperature and pressure conditions of the transfer operation, the loading method employed (*e.g.,* submerged loading versus splash loading), and the volume of material transferred. In addition, during the loading of liquid into transport vehicles, VOC and HAP vapors present in the transport vehicle are displaced by the liquid being loaded. The vapors in the transport vehicle include either vapors generated as the liquid is being loaded, and/or vapors remaining from residual commodity or liquid from the previous load (if present). For uncontrolled operations, transfer rack emissions typically occur at the loading hatch or opening of the transport vehicle. Emissions can also occur from leaks in the transport vehicle. The rate at which these VOC and HAP are emitted varies depending on which type of transport vehicle is being loaded (tank truck or railcar), whether the transport vehicle was empty before filling or refilled while still containing a heel and vapors, the physical and chemical characteristics of the liquid being loaded, and the type of loading method used.

Owners and operators of each HON transfer rack that annually loads greater than or equal to 0.65 million liters of liquid products that contain organic HAP with a rack weighted average vapor pressure greater than or equal to 10.3 kPa are required to equip each transfer rack with a vapor collection system and control device to reduce total organic HAP emissions by 98 percent by weight or to an exit concentration of 20 ppmv, whichever is less stringent. The HON also allows multiple other options to control emissions from applicable transfer racks, including: use of a flare, or collecting emissions for use in the process, a fuel gas system, or a vapor balance system. However, as previously mentioned, the HON excludes transfer racks with an operating pressure greater than 204.9 kPa from these requirements. While we recognize that these high operating pressure transfer racks are likely being controlled by owners and operators, the HON does not currently require them to be controlled on the presupposition that transfer racks with an operating pressure greater than 204.9 kPa do not leak emissions to the atmosphere. We consider the lack of control requirements for transfer racks with an operating pressure greater than 204.9 kPa to be a gap in the current HON. As such, we are proposing to remove the 204.9 kPa operating pressure exemption from the definition of transfer operations at 40 CFR 63.101 on the premise that, just like pressure vessels (as discussed in section III.D.6 of this preamble), these high operating pressure transfer racks can have

[144] They also represent the level of control found to be cost-effective for process vents and that we are proposing for HON process vents under technology review in section III.C.3 of this preamble.

emissions to the atmosphere. Considering this, owners and operators would be required to equip each transfer rack with an operating pressure greater than 204.9 kPa with a vapor collection system and control device to reduce total organic HAP emissions by 98 percent by weight or to an exit concentration of 20 parts per million by volume, whichever is less stringent. These requirements are consistent with CAA section 112(d) controls and reflect the MACT floor, and we did not identify any additional options beyond this (*i.e.,* beyond-the-floor options) for controlling emissions from these transfer racks.

We anticipate that the proposed removal of the 204.9 kPa operating pressure exemption from the definition of transfer operations would not impose a cost increase because we believe that owners and operators are already controlling emissions from transfer racks with an operating pressure greater than 204.9 kPa. For example, as discussed in an EPA published document regarding sources of EtO,[145] EtO is normally shipped in 38,000 and 76,000 liter (10,000 and 20,000 gallon) railroad tank cars, which are normally loaded directly from plant storage vessels. The transfer generally occurs at about 350 kPa. At most facilities, displaced vapors from the filling of tank cars and storage vessels are either recycled to the process or scrubbed prior to incineration or flaring. When the vapors are scrubbed, the liquid effluent from the scrubber is routed to the desorber for EtO recovery. Emissions of EtO from storage and loading are assumed to be nearly zero if either control approach is used. We solicit comment on the proposed removal of the 204.9 kPa operating pressure exemption from the definition of transfer operations and whether our assumption that these types of transfer racks are already being controlled is reasonable.

9. Heat Exchange Systems (for P&R II)

P&R II currently does not regulate HAP emissions from heat exchange systems. However, as previously discussed in sections III.B.2.a.iii and III.C.1 of this preamble, 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). For this reason, we are proposing under CAA section 112(d)(2) and (3) to include in P&R II the same LDAR program for heat exchange systems as in the HON and P&R I, and we are proposing the same changes to this LDAR program for P&R II that we are proposing in this action for the HON and P&R I (see section III.C.1 of this preamble). Specifically, we are proposing at 40 CFR 63.522 to revise the definition of ''affected source'' to include heat exchange systems; and we are proposing the same definition of ''heat exchange systems'' for P&R II that is already used in the HON and P&R I to mean ''any cooling tower system or once-through cooling water system (*e.g.,* river or pond water). A heat exchange system can include more than one heat exchanger and can include an entire recirculating or once-through cooling system.''

We reviewed publicly available air permits for the five facilities subject to either the BLR or WSR standards in P&R II and found that some of these facilities do have heat exchange systems. In reviewing air permits, three of the five facilities subject to P&R II are collocated with HON sources. Furthermore, we also anticipate that the heat exchange systems used at these sources are small (<10,000 gallons per minute) and would likely be sent to large, integrated cooling towers subject to other NESHAP, like the HON, that are already conducting water sampling at the cooling tower for leaks. Additionally, we expect that most water used by heat exchange systems in P&R II processes are likely from water jacketed reactors that either have large pressure differentials (*i.e.,* >35 kPa) between the cooling water side and process side or have intervening cooling fluids between the process and cooling water such that leaks of HAP would not occur in heat exchange systems that would lead to air emissions. Given this, we assumed that adding requirements for heat exchange systems would already be accounted for in the HON or that heat exchange systems would not be required to conduct such monitoring at P&R II sources because they meet criteria that exempt heat exchange systems with no potential for air emissions from the LDAR requirements. Thus, conducting an LDAR program consistent with what is in the HON constitutes what the best performers are doing and is the MACT floor level of control for P&R II facilities. We note that even if a P&R II facility were to incur a cost to implement a LDAR program for a heat exchange system, we would expect this cost to be small (*i.e.,* $4,300 in total capital investment and $4,500/yr in total annualized cost) per the costs for a single heat exchange system conducting El Paso monitoring and that this work practice standard would be cost-effective for P&R II sources as a beyond-the-floor control option. Thus, we are proposing that P&R II sources comply with the same standard as we are proposing for HON and P&R I heat exchange systems as part of our technology review (see section III.C.1 of this preamble). For further information, see the document titled *Clean Air Act Section 112(d)(6) Technology Review for Heat Exchange Systems Located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Heat Exchange Systems that are Associated with Processes Subject to Group I Polymers and Resins NESHAP; and Control Option Impacts for Heat Exchange Systems that are Associated with Processes Subject to Group II Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

We are proposing at 40 CFR 63.523(d) (for BLR manufacturers) and 40 CFR 63.524(c) (for WSR manufacturers) that owners and operators of each affected source comply with the requirements of 40 CFR 63.104 for heat exchange systems, except we are proposing to require 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 63.104(j)(3) 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 63.104(h) and (i) 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

[145] EPA. *Locating And Estimating Air Emissions From Sources Of Ethylene Oxide.* September 1986. EPA–450/4–84–007L.

comment on the proposed standards for heat exchange systems for P&R II.

10. WSR Sources and Equipment Leaks (for P&R II)

P&R II currently contains an alternative standard for WSR sources that establishes a regulatory gap in the rule at 40 CFR 63.524(a) and (b). The alternative standard allows owners and operators of WSR sources to choose between complying with a production-based emission limit for process vents, storage tanks, and wastewater systems, or the requirements of NESHAP subpart H to control emissions from equipment leaks. In other words, owners and operators of WSR sources are currently not required to control emissions from all of their P&R II emission sources.[146] In the original proposed rulemaking, the EPA stated that: ''Because no existing facility in the WSR source category controls equipment leak emissions, the MACT floor for the equipment leaks portion of the source represents an uncontrolled situation.'' [147] Instead, the EPA promulgated the alternative standard for WSR sources and said ''an alternative standard was specified that allows facilities to implement the requirements of subpart H to control emissions from equipment leaks. The alternative standard is much more cost effective, and will result in a greater overall HAP emission reduction. However, the alternative standard is not being required because the cost was considered to be too high to justify requiring more control than that achieved at the MACT floor. Section 112(d) of the Clean Air Act requires standards to be set at a level no less stringent than the MACT floor but requires consideration of the cost of achieving further reductions before requiring reductions beyond the MACT floor.'' [148] We are proposing to address this regulatory gap by requiring owners and operators of existing, new, or reconstructed affected WSR sources to comply with both the equipment leak standards in the HON and the HAP emissions limitation for process vents, storage tanks, and wastewater systems (see proposed 40 CFR 63.524(a)(3) and (b)(3)). We are also proposing to remove several introductory phrases in P&R II that currently indicate the alternative standard is optional; and instead, we are proposing to replace these phrases with text that indicate the alternative standard is no longer optional, but required (see proposed 40 CFR 63.525(e) through (i), 40 CFR 63.526(b) and (d), and 40 CFR 63.527(b) through (d)). As previously mentioned, the EPA determined that no WSR source was originally complying with the requirements of NESHAP subpart H; instead, these WSR sources were originally complying with the production-based emission limit for process vents, storage tanks, and wastewater systems. However, a review of the publicly available permits for the two WSR sources indicates that they are currently complying with the equipment leak requirements of the HON; thus, we believe the requirements are consistent with CAA section 112(d) controls, reflect the MACT floor, and there are no additional costs from this change. We also did not identify any additional options beyond those identified above (*i.e.,* beyond-the-floor options) for reducing emissions from WSR sources. We solicit comment on our proposal to require owners and operators of existing, new, or reconstructed affected WSR sources to comply with both the equipment leak standards in the HON and the HAP emissions limitation for process vents, storage tanks, and wastewater systems, and whether our assumption that the affected WSR sources are already complying with both standards is reasonable.

In addition, the definition of equipment leaks in P&R II at 40 CFR 63.522 excludes ''valves'' in the list of components; therefore, P&R II currently does not regulate HAP emissions from leaking valves. We believe this is a typographical error in P&R II and the EPA has always intended to include valves as part of the equipment leaks LDAR program requirements in P&R II. We note that in the original P&R II proposal (see 59 FR 25387, May 16, 1994), the EPA referred to equipment leak emission points using a phrase implying valve inclusivity (*i.e.,* ''such as pumps and valves''). Additionally, the BLR and WSR model plants used to assess impacts of implementing the LDAR requirements in P&R II included valve component counts; [149] and no adverse comment was received on this topic between proposal and final rulemaking for P&R II. As previously mentioned, emissions of HAP from equipment leaks occur in the form of gases or liquids that escape to the atmosphere through many types of connection points (including valves). For this reason, we are proposing under CAA section 112(d)(2) and (3) to include valves in the definition of ''equipment leaks'' at 40 CFR 63.522 such that owners and operators of an existing, new, or reconstructed affected BLR or WSR source would be required to comply with the same LDAR program that already exists in the HON and P&R I for valves 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. Specifically, our proposal would require owners or operators to meet the control requirements for valves in NESHAP subpart H (see section III.C.6.a of this preamble for a more detailed description of the MACT standard for equipment leaks). A review of the publicly available permits for P&R II sources indicates that P&R II facilities are already complying with the equipment leak requirements of the HON (which include LDAR requirements for valves), so we believe there are no additional cost or emissions reduction from this proposed typographical correction. We solicit comment on the proposed revisions for equipment leaks from WSR sources in P&R II.

E. What other actions are we proposing, and what is the rationale for those actions?

In addition to the proposed actions on the CAA 111(b)(1)(B) and 112(d)(6) reviews discussed in section III.A of this preamble, we are proposing to remove exemptions in the HON, P&R I, and P&R II from the requirement to comply during periods of SSM; similarly, we are proposing standards in NSPS subparts VVb, IIIa, NNNa, and RRRa that apply at all times. We are also proposing to remove the affirmative defense provisions from P&R I that were adopted in 2011. In addition, we are proposing changes to the HON, P&R I, and P&R II recordkeeping and reporting requirements to require the use of electronic reporting of performance test reports and periodic reports; and we are proposing similar standards in NSPS subparts VVb, IIIa, NNNa, and RRRa. We are also proposing in the HON, P&R I, and P&R II to correct section reference errors and make other minor editorial revisions. Finally, in response to a petition for reconsideration, we are proposing to amend NSPS subpart VVa; and although not part of the petition for reconsideration, we are also proposing to clarify (in NSPS subpart VVa) the

[146] This alternative standard is not an option for BLR sources; therefore, there is no regulatory gap in P&R II for BLR sources. Instead, owners and operators of BLR sources are subject to both a production-based emission limit for process vents, storage tanks, and wastewater systems, and the requirements of NESHAP subpart H to control emissions from equipment leaks (see 40 CFR 63.523).

[147] See 59 FR 25387, May 16, 1994.

[148] See 60 FR 12670, March 8, 1995.

[149] See Appendix G of the document titled *Hazardous Air Pollutants From Epoxy Resins And Non-nylon Polyamide Resins Production* (Docket ID A–92–37, Item II–A–008).

calibration drift assessment and correct the incorporations by reference. Our rationale and proposed changes related to all of these issues are discussed below.

1. SSM

In its 2008 decision in *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008), the United States Court of Appeals for the District of Columbia Circuit (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 section 112 standards apply continuously. With the issuance of the mandate in *Sierra Club* v. *EPA,* the exemption language in 63.6(f)(1) and (h)(1) are null and void and any cross reference to those provisions have no effect.

In March 2021, the EPA issued a rule [150] to reflect the court vacatur that revised the Part 63 General Provisions to remove the SSM exemptions at 40 CFR 63.6(f)(1) and (h)(1). In this action, we are proposing to eliminate references in the HON, P&R I, and P&R II to these SSM exemptions in the General Provisions that are null and void and are no longer printed in the CFR, remove any additional SSM exemptions or references to SSM exemptions in the HON, P&R I, and P&R II, and remove any cross-references in the HON, P&R I, and P&R II to provisions in 40 CFR part 63 (General Provisions) that are unnecessary, inappropriate or redundant in the absence of the SSM exemption.[151] See section III.E.1.a of this preamble for our proposed amendments to the HON, P&R I, and P&R II related to the SSM exemptions. The EPA has attempted to ensure that the general provisions we are proposing to override are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We specifically seek comment on whether we have successfully done so.

Additionally, the EPA has determined the reasoning in the court's decision in *Sierra Club* applies equally to CAA section 111 because the definition of emission or standard in CAA section 302(k), and the embedded requirement for continuous standards, also applies to the NSPS.[152] Therefore, we are proposing standards in NSPS subparts VVb, IIIa, NNNa, and RRRa that apply at all times, and more specifically during periods of SSM, to match the proposed revised SSM provisions in the HON, P&R I, and P&R II. The NSPS general provisions in 40 CFR 60.8(c) currently exempt non-opacity emission standards during periods of SSM. We are proposing in NSPS subparts VVb, IIIa, NNNa, and RRRa specific requirements [153] that override the general provisions for SSM. See section E.1.b of this preamble for our proposed standards related to the SSM exemptions for NSPS subparts VVb, IIIa, NNNa, and RRRa.

a. Proposed Elimination of the SSM Exemption in the HON, P&R I, and P&R II

We are proposing the elimination of the vacated exemption provision and several revisions to Table 3 to subpart F of part 63 (the General Provisions Applicability Table to subparts F, G, and H of 40 CFR part 63, hereafter referred to as the ''General Provisions table to HON''), Table 1 to subpart U of part 63 (the General Provisions Applicability Table to subpart U of 40 CFR part 63, hereafter referred to as the ''General Provisions table to P&R I''), and Table 1 to subpart W of part 63 (the General Provisions Applicability Table to subpart W of 40 CFR part 63, hereafter referred to as the ''General Provisions table to P&R II'') 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. 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.

For the HON and P&R II, we are proposing (as already required in P&R I at 40 CFR 63.480(j)) that emissions from startup and shutdown activities be included when determining if all the standards are being met. As currently proposed in 40 CFR 63.102(e) and 40 CFR.525(j), compliance with the emission limitations (including operating limits) in the HON and P&R II is required ''at all times.'' We solicit comment on whether owners and operators of affected sources subject to the HON or P&R II will be able to comply with the standards during these times. We also note that we are proposing standards for maintenance activities that occur during periods of startup and shutdown (see section III.D.4 of this preamble). Emission reductions for storage vessel, process vent, transfer rack, and wastewater operations (as well as other emission sources) 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 60.2 and 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 D.C. Circuit in *U.S. Sugar Corp.* v. *EPA,* 830 F.3d 579, 606–610 (2016). Therefore, the standards that apply during normal operation apply during periods of malfunction.

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 EMACT standards, and

[150] U.S. EPA, *Court Vacatur of Exemption From Emission Standards During Periods of Startup, Shutdown, and Malfunction.* (86 FR 13819, March 11, 2021).

[151] We note that on April 21, 2011 (see 77 FR 22566), the EPA finalized amendments to eliminate the SSM exemption in P&R I; however, for consistency with the SSM related amendments that we are proposing for the HON and P&R II, we are also proposing (as detailed in this section of this preamble) additional amendments to P&R I related to the SSM exemption that were not addressed in the April 21, 2011, P&R I rule.

[152] See, *e.g.,* 88 FR 11556 (Feb. 23, 2023) (removing SSM exemptions from NSPS for lead acid battery manufacturing plants); 87 FR 73708 (Dec. 1, 2022) (proposing to remove SSM exemptions from NSPS for secondary lead smelters); 77 FR 49490 (Aug. 16, 2012) (removing SSM exemptions from NSPS for oil and natural gas sector).

[153] See proposed 40 CFR 60.482–1b, 40 CFR 60.612a, 40 CFR 60.662a, and 40 CFR 60.702a, respectively.

the MON, 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 (see 80 FR 75178, December 1, 2015, 85 FR 40386, July 6, 2020, and 85 FR 49084, August 12, 2020, respectively). The EPA will consider whether circumstances warrant setting standards for a particular type of malfunction in the SOCMI, P&R I, and P&R II source categories, 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. These are discussed further in section III.D.1 and III.D.2 of this preamble.

We are also proposing the following revisions to the General Provisions table to HON, the General Provisions table to P&R I, and the General Provisions table to P&R II as detailed below.

i. General Duty

We are proposing to revise the General Provisions table to the HON entry for 40 CFR 63.6(e) by adding a footnote to the ''yes'' entry in column 2 to clarify that the row for the ''63.6(e)'' entry would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register** because the General Provisions table to HON already contains other entries that breakdown the specific paragraphs of 63.6(e) that are applicable to the HON. Some of the language in section 63.6(e) is no longer necessary or appropriate in light of the elimination of the SSM exemption. Section 63.6(e)(1)(i) describes the general duty to minimize emissions and section 63.6(e)(3) describes requirements for an SSM plan. We are proposing instead to add general duty regulatory text at 40 CFR 63.102(f) (for HON) and 40 CFR 63.525(k) (for P&R II) that reflects the general duty to minimize emissions 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. We are also proposing to revise the General Provisions table to P&R II 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 columns 2, 3, and 4 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**. Section 63.6(e)(1)(i) 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 63.102(f) and 40 CFR 63.525(k). Therefore, the language the EPA is proposing for 40 CFR 63.102(f) and 40 CFR 63.525(k) does not include the language from 40 CFR 63.6(e)(1). We note that the EPA already added a similar general duty provision to P&R I at 40 CFR 63.483(a) (see 77 FR 22566, April 21, 2011); however, we are proposing to correct a referencing error in the General Provisions table to P&R I entry for 40 CFR 63.6(e)(1)(i) by changing ''§ 63.483(a)(1)'' to ''§ 63.483(a)''. We are also proposing revisions at 40 CFR 63.483(a) to be consistent with the general duty requirement we are proposing to add to 40 CFR 63.102(f) and 40 CFR 63.525(k).We are also proposing to revise the General Provisions table to HON entry for 40 CFR 63.6(e)(1)(ii) by changing the ''yes'' in column 2 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**. We are proposing similar revisions for the General Provisions table to P&R II by adding a separate row for 40 CFR 63.6(e)(1)(ii) and changing the ''yes'' in columns 2, 3, and 4 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**. We note that the EPA already made a similar revision to the General Provisions table to P&R I (see 77 FR 22566, April 21, 2011).

ii. SSM Plan

As noted in the previous paragraph, the proposed revisions to the General Provisions table to the HON and the General Provisions table to P&R II for 40 CFR 63.6(e) will also remove provisions that require an SSM plan. We are proposing to revise the General Provisions table to HON entries for 40 CFR 63.6(e)(3)(i), 63.6(e)(3)(i)(B), (C), 63.6(e)(3)(ii) and (vi) through (ix) by changing the ''yes'' in column 2 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**. We are proposing similar revisions for the General Provisions table to P&R II by adding a separate row for 40 CFR 63.6(e)(3) and changing the ''yes'' in columns 2, 3, and 4 to a ''no'' in which 40 CFR 63.6(e)(3) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. We note that the EPA already made a similar revision to the General Provisions table to P&R I (see 77 FR 22566, April 21, 2011). Generally, the paragraphs under 40 CFR 63.6(e)(3) 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 are 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.

iii. Compliance With Standards

We are proposing to clarify the comment in the General Provisions table to HON entry for 40 CFR 63.6(f)(1) to include a reference to the new proposed general duty requirements at 40 CFR 63.102(e). We are also proposing to add a separate row for 40 CFR 63.7(a)(4) to the General Provisions tables to the HON, P&R I, and P&R II to make 40 CFR 63.7(a)(4) applicable to each of these NESHAP for when an owner or operator intends to assert a claim of force majeure.

iv. Performance Testing

We are proposing to revise the General Provisions table to HON entry for 40 CFR 63.7(e)(1) by changing the ''yes'' in column 2 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. We are proposing a similar revision to the General Provisions table to P&R II entry for 40 CFR 63.7(e)(1) by changing the ''yes'' in columns 2, 3, and 4 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**. We note that the EPA already made a similar revision to the General Provisions table to P&R I (see 77 FR 22566, April 21, 2011). The EPA is instead proposing to add a performance testing requirement at 40 CFR 63.103(b)(3)(ii) (for HON), 40 CFR 63.504(a)(1)(iii) (for P&R I), and 40 CFR 63.525(l) (for P&R II). The performance testing requirements we are proposing differ from the General Provisions performance testing provisions in several respects. The 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)(1) requires that the owner or operator make such records ''as may be necessary to determine the condition of the performance test'' available to the Administrator upon request 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.

v. Monitoring

We are proposing to revise the General Provisions tables to the HON and P&R I entries for 40 CFR 63.8(c)(1)(i) and (iii) by changing the ''yes'' in column 2 to a ''no'' in which 40 CFR 63.8(c)(1)(i) and (iii) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. We are proposing similar revisions for the General Provisions table to P&R II entries for 40 CFR 63.8(c)(1)(i) and (iii) by changing the ''yes'' in columns 2, 3, and 4 to a ''no'' in which 40 CFR 63.8(c)(1)(i) and (iii) 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)).

vi. Reporting

We are proposing to revise the General Provisions table to the HON entry for 40 CFR 63.10(d)(5) by changing the ''yes'' in column 2 to a ''no'' in which 40 CFR 63.10(d)(5) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. We are proposing similar revisions for the General Provisions table to P&R II entry for 40 CFR 63.10(d)(5) by changing the ''yes'' in columns 2, 3, and 4 to a ''no'' in which 40 CFR 63.10(d)(5) would no longer be applicable beginning 3 years after publication of the final rule in the **Federal Register**. We note that the EPA already made a similar revision to the General Provisions table to P&R I (see 77 FR 22566, April 21, 2011). Section 63.10(d)(5) describes the reporting requirements for SSM. To replace the General Provisions reporting requirement, the EPA is proposing to add reporting requirements to 40 CFR 63.152(c)(2)(ii)(F) (for HON), 40 CFR 63.506(e)(6)(iii)(C) (for P&R I), and 40 CFR 63.528(a)(4) (for P&R II). The replacement language differs from the General Provisions requirement in that it eliminates periodic SSM reports as a stand-alone report. We are proposing language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the periodic report already required under the HON, P&R I, and P&R II. We are proposing that the report must contain the cause of such events (including unknown cause, if applicable), a list of the affected source 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. 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 this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

We will no longer require owners or operators to determine whether actions taken to correct a malfunction are consistent with an SSM plan, because plans would no longer be required. The proposed amendments at 63.10(d)(5), therefore, eliminate the cross-reference to 40 CFR 63.10(d)(5)(i) that contains the description of the previously required SSM report format and submittal schedule from this section. These specifications are no longer necessary because the events will be reported in otherwise required reports with similar format and submittal requirements.

The proposed amendments at 63.10(d)(5) will also eliminate the cross-reference to 40 CFR 63.10(d)(5)(ii). Section 63.10(d)(5)(ii) describes an immediate report for startups, shutdown, and malfunctions when a source failed to meet an applicable standard but did not follow the SSM plan. We will no longer require owners or operators to report when actions taken during a startup, shutdown, or malfunction were not consistent with an SSM plan, because plans would no longer be required.

b. Proposal of NSPS Subparts VVb, IIIa, NNNa, and RRRa Without SSM Exemptions

We are proposing standards in the NSPS subparts VVb, IIIa, NNNa, and RRRa that apply at all times. For NSPS VVb, we are proposing that the work practice standards will apply at all times, including during SSM. For NSPS subparts IIIa, NNNa, and RRRa, these standards include the performance standards when the affected facilities are operational and work practice standards that will apply during periods of startup and shutdown (including when maintenance and inspection activities are being conducted). The NSPS general provisions in 40 CFR 60.8(c) contain an exemption from non-opacity standards. Therefore, we are also proposing in NSPS subparts VVb, IIIa, NNNa, and RRRa specific requirements at 40 CFR 60.482–1b, 40 CFR 60.612a, 40 CFR 60.662a, and 40 CFR 60.702a, respectively that override the general provisions for SSM. Accordingly, our proposed NSPS subparts VVb, IIIa, NNNa, and RRRa would include standards that apply at all times, including during periods of startup and shutdown.

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 60.2). The EPA interprets CAA section 111 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 111 standards. Nothing in CAA section 111 or in case law requires that the EPA consider malfunctions when determining what standards of performance reflect the degree of emission limitation ''achievable through the application of the best system of emission reduction'' that the EPA determines is adequately demonstrated. While the EPA accounts for variability in setting emissions standards, 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. A malfunction is a failure of the source to perform in a ''normal or usual manner'' (40 CFR 60.2), and no statutory language compels the EPA to consider such events in setting section 111 standards of performance. The EPA's approach to malfunctions when interpreting analogous language under CAA section 112 has been upheld as reasonable by the D.C. Circuit in *U.S. Sugar Corp.* v. *EPA,* 830 F.3d 579, 606–610 (D.C. Cir. 2016) (affirming as reasonable the EPA's approach to setting ''achievable'' standards under section 112 as measured by the ''best controlled similar source'' without considering malfunctions, instead accounting for them in its enforcement discretion).

Also, as previously discussed, although no statutory language compels the EPA to set standards for malfunctions, the EPA has the discretion to do so where feasible. The EPA is proposing to establish work practice standards for unique types of malfunction that result in releases from emergency flaring events because the EPA had information to determine that such work practices reflected the level of control that applies to the BSER. The EPA will consider whether circumstances warrant setting standards for a particular type of malfunction in the SOCMI NSPS rules, 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. These are discussed further in sections III.D.1, III.C.3.b, and III.C.6.b of this preamble.

2. Affirmative Defense (Related to P&R I)

As part of one of the P&R I RTR rulemakings (see 77 FR 22566, April 21, 2011), the EPA included the ability to assert an affirmative defense to civil penalties for violations caused by malfunctions (see 40 CFR 63.480(j)(4)) in an effort to create a system that incorporated some flexibility, recognizing that there is a tension, inherent in many types of air regulation, to ensure adequate compliance while simultaneously recognizing that despite the most diligent of efforts, emission standards may be violated under circumstances entirely beyond the control of the source.[154] Although the EPA recognized that its case-by-case enforcement discretion provides sufficient flexibility in these circumstances, it included the affirmative defense provision to provide a more formalized approach and more regulatory clarity. See *Weyerhaeuser Co.* v. *Costle,* 590 F.2d 1011, 1057–58 (D.C. Cir. 1978) (holding that an informal case-by-case enforcement discretion approach is adequate); but see *Marathon Oil Co.* v. *EPA,* 564 F.2d 1253, 1272–73 (9th Cir. 1977) (requiring a more formalized approach to consideration of ''upsets beyond the control of the permit holder.''). Under the EPA's regulatory affirmative defense provisions, if a source could demonstrate in a judicial or administrative proceeding that it had met the requirements of the affirmative defense in the regulation, civil penalties would not be assessed. However, the court vacated the affirmative defense in one of the EPA's CAA section 112 regulations. *NRDC* v. *EPA,* 749 F.3d 1055 (D.C. Cir., 2014) (vacating affirmative defense provisions in the CAA section 112 rule establishing emission standards for Portland cement kilns). The court found that the EPA lacked authority to establish an affirmative defense for private civil suits and held that under the CAA, the authority to determine civil penalty amounts in such cases lies exclusively with the courts, not the EPA. Specifically, the court found: ''As the language of the statute makes clear, the courts determine, on a case-by-case basis, whether civil penalties are 'appropriate.''' See *NRDC,* 749 F.3d at 1063 (''[U]nder this statute, deciding whether penalties are 'appropriate' in a given private civil suit is a job for the courts, not EPA.'').[155] In light of *NRDC,* the EPA is proposing to remove all of the regulatory affirmative defense provisions from P&R I at 40 CFR 480(j)(4) in its entirety and all other rule text that references these provisions (*i.e.,* the reference to ''§ 63.480(j)(4)'' in 40 CFR 63.506(b)(1)(i)(A) and (b)(1)(i)(B)). As explained above, if a source is unable to comply with emissions standards as a result of a malfunction, the EPA may use its case-by-case enforcement discretion to provide flexibility, as appropriate. Further, as the court recognized, in an EPA or citizen enforcement action, the court has the discretion to consider any defense raised and determine whether penalties are appropriate. *Cf. NRDC,* 749 F.3d at 1064 (arguments that violation was caused by unavoidable technology failure can be made to the courts in future civil cases when the issue arises). The same is true for the presiding officer in EPA administrative enforcement actions.[156]

3. Electronic Reporting

The EPA is proposing that owners and operators of SOCMI processes located at chemical plants submit electronic copies of required performance test reports, flare management plans, and periodic reports (including fenceline monitoring reports) through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI) (see proposed 40 CFR 63.108(e), 40 CFR 63.152(c) and (h), and 40 CFR 63.182(d) and (e) (for HON), 40 CFR 63.506(e)(6), and (i)(3) (for P&R I), and 40 CFR 63.528(a) and (d) (for P&R II), 40 CFR 60.486(l), and 60.487(a) and (g) through (i) (for NSPS subpart VV), 40 CFR 60.486a(l), and 60.487a(a) and (g) through (i) (for NSPS subpart VVa), 40 CFR 60.486b(l), and 60.487b(a) and (g) through (i) (for NSPS subpart VVb), 40 CFR 60.615(b), (j), (k), and (m) through (o) (for NSPS subpart III), 40 CFR 60.615a(b), (h) through (l), and (n), and 40 CFR 619a(e) (for NSPS subpart IIIa), 40 CFR 60.665(b), (l), (m), and (q) through (s) (for NSPS subpart NNN), 40 CFR 60.665a(b), (h), (k) through (n), and (p), and 40 CFR 669a(e) (for NSPS subpart NNNa), 40 CFR 60.705(b), (l), (m), and (u) through (w) (for NSPS subpart RRR), and 40 CFR 60.705a(b), (k) through (o), and (v), and 40 CFR 709a(e) (for NSPS subpart RRRa)). We note that for NSPS VV, VVa, III, NNN, and RRR, we are only proposing to change the format of the reporting requirements to require electronic reporting (*i.e.,* we are not proposing any new data elements). A description of the electronic data submission process is provided in the document titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules,* available in the docket for this action.

The proposed rules require that performance test results collected using test methods that are supported by the

[154] We note that the HON and P&R II do not include affirmative defense rule text.

[155] The court's reasoning in *NRDC* focuses on civil judicial actions. The court noted that ''EPA's ability to determine whether penalties should be assessed for CAA violations extends only to administrative penalties, not to civil penalties imposed by a court.'' *Id.*

[156] Although the *NRDC* case does not address the EPA's authority to establish an affirmative defense to penalties that are available in administrative enforcement actions, we are not including such an affirmative defense in the proposed rule. As explained above, such an affirmative defense is not necessary. Moreover, assessment of penalties for violations caused by malfunctions in administrative proceedings and judicial proceedings should be consistent. *Cf.* CAA section 113(e) (requiring both the Administrator and the court to take specified criteria into account when assessing penalties).

EPA's Electronic Reporting Tool (ERT) as listed on the ERT website [157] at the time of the test be submitted in the format generated through the use of the ERT or an electronic file consistent with the xml schema on the ERT website, and other performance test results be submitted in portable document format (PDF) using the attachment module of the ERT. Flare management plans would be uploaded as a PDF file.

For periodic reports (including fenceline monitoring reports), the proposed rules require that owners and operators use an appropriate spreadsheet template to submit information to CEDRI. A draft version of the proposed templates for these reports is included in the docket for this action.[158] The EPA specifically requests comment on the content, layout, and overall design of the templates. For NSPS subpart VV, VVa, III, NNN, and RRR, we are proposing owners and operators begin using the templates one year after the final rule is published in the **Federal Register** or once the reporting template for the subpart has been available on the CEDRI website for 1 year, whichever date is later. For NSPS subparts VVb, IIIa, NNNa, and RRRa, we are proposing owners and operators begin using the templates 60 days after the final rule is published in the **Federal Register** or once the reporting template for the subpart has been available on the CEDRI website for 1 year, whichever date is later. For HON, P&R I, and P&R II, we are proposing owners and operators begin using the templates for periodic reports other than fenceline reports three years after the final rule is published in the **Federal Register**, or once the reporting template for the subpart has been available on the CEDRI website for 1 year, whichever date is later. Owners and operators would begin using the templates for fenceline monitoring reports starting when the first fenceline monitoring report is due.

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. These circumstances are: (1) Outages of the EPA's CDX or CEDRI which preclude an owner or operator from accessing the system and submitting required reports and (2) *force majeure* events, which are defined as events that will be or have been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevent an owner or operator from complying with the requirement to submit a report electronically. Examples of *force majeure* events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility. The EPA is providing these potential extensions in NSPS subparts VVb, IIIa, NNNa, and RRRa (see proposed 40 CFR 60.487b (h) and (i), 40 CFR 60.615a (j) and (k), 40 CFR 60.665a(l) and (m), and 40 CFR 60.705(m) and (n), respectively) 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. 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. These potential extensions are not necessary to add to the HON, P&R I, and P&R II because they were recently added to 40 CFR part 63, subpart A, General Provisions at 40 CFR 63.9(k).

The electronic submittal of the reports addressed in these proposed rulemakings 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 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 [159] to implement Executive Order 13563 and is in keeping with the EPA's Agency-wide policy [160] developed in response to the White House's Digital Government Strategy.[161] For more information on the benefits of electronic reporting, see the document titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules,* referenced earlier in this section.

4. NSPS Subpart VVa Reconsideration Issues

In January 2008, the EPA received one petition for reconsideration of the NSPS subpart VVa rulemaking pursuant to CAA section 307(d)(7)(B) from the following petitioners: American Chemistry Council, American Petroleum Institute, and National Petrochemical and Refiners Association (now the American Fuel and Petrochemical Manufacturers). See section II.A.3 of this preamble for additional details about this petition for reconsideration. On June 2, 2008, the EPA indicated (73 FR 31372) that it would be publishing a **Federal Register** notice in response to the petition for reconsideration on: (1) The clarification of the definition of process unit in subparts VV, VVa, GGG, and GGGa; (2) the assignment of shared storage vessels to specific process units in subparts VV, VVa, GGG, and GGGa at 40 CFR 60.481a and 40 CFR 60.482–1a(g); (3) the monitoring of connectors in subpart VVa at 40 CFR 60.482–11a; and (4) the definition of capital expenditure in subpart VVa at 40 CFR 60.481a. These provisions were stayed pending resolution of the reconsideration.[162] This action does not respond to the reconsideration of NSPS subparts GGG and GGGa, as the EPA is not reviewing those subparts in this action and instead is only proposing to address issues 1 through 4 for subparts VV and VVa.

On November 16, 2007, the EPA promulgated amendments to the NSPS subpart VV as well as new equipment leak requirements in NSPS subpart VVa.

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

[158] See Part_60_Subpart_VV_60.487(a)_Semiannual_Report.xlsx, Part_60_Subpart_III_60.615_Semiannual_Report.xlsx, Part_60_Subpart_NNN_60.665_Report.xlsx, Part_60_Subpart_RRR_60.705_Report.xlsx, Part_63_Subpart_G_63.152(c)_Periodic_Report.xlsx, Part_63_Subpart_H_63.182(d)_Periodic_Report.xlsx, Part_63_Subpart_H_63.182(e)_Fenceline_Quarterly_Report.xlsx, Part_63_Subpart_U_63.506(e)(6)_Periodic_Report.xlsx, and Part_63_Subpart_W_63.528(a)_Periodic_Report.xlsx, available in the docket for this action.

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

[160] 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.*

[161] 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.*

[162] The EPA only granted reconsideration of issues 2 through 4 in their March 4, 2008 letter to petitioners, however, we are proposing reconsideration on issue 1 (the clarification of the definition of process unit) as well because of its reliance on issue 2 (the assignment of shared storage vessels to specific process units).

As part of the rulemaking, the EPA finalized a definition for ''process unit'' that included a phrase that a process unit ''includes all equipment as defined in this subpart'' which was intended to clarify what equipment was covered by the rule. However, petitioners stated that the ''EPA must reconsider its 'clarification' of the definition of process unit'' because ''the new process unit definition is inconsistent with the originally promulgated definition.'' The petitioners alleged that the new definition ''substantially expands'' the definition of process unit, thereby expanding applicability of the NSPS ''to equipment not previously subject to those requirements.'' They also state that because the EPA characterized this change as a ''clarification,'' we failed to solicit and consider public comments on the impacts of this requirement for both existing and new SOCMI facilities. After further review, the November 16, 2007, definition is imprecise with respect to the usage of the terms ''equipment'' versus ''components.'' Equipment is a separately defined term and should not be included within the definition of process unit to establish applicability. The reader instead should be able to refer to 40 CFR 60.480(a) (for NSPS subpart VV) and 40 CFR 60.480a(a) (for NSPS subpart VVa) for applicability and designation of the affected facility and refer to 40 CFR 60.481 (for NSPS subpart VV) and 40 CFR 60.481a (for NSPS subpart VVa) for definitions of terms used within the applicability section. Therefore, we are proposing to revert back to the same definition for ''process unit'' that is currently being used in NSPS subpart VV and NSPS subpart VVa according to the stay requirements. For NSPS subpart VV, we are proposing that ''process unit'' means components assembled to produce, as intermediate or final products, one or more of the chemicals listed in 40 CFR 60.489 of this part. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product. For NSPS subpart VVa, we are proposing that ''process unit'' means components assembled to produce, as intermediate or final products, one or more of the chemicals listed in 40 CFR 60.489a of this part. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product. These proposed definitions for ''process unit'' for NSPS subparts VV and VVa avoid accidentally retroactively expanding coverage of NSPS subparts VV and VVa to previously uncovered facilities.

Also, as part of the November 16, 2007 rulemaking, the EPA finalized procedures at 40 CFR 60.482–1(g) (for NSPS subpart VV) and 40 CFR 60.482–1a(g) (for NSPS subpart VVa) intended to clarify how to assign storage vessels that are shared among multiple process units to a specific process unit. The EPA also revised the process unit definition at 40 CFR 60.481 (for NSPS subpart VV) and 40 CFR 60.481a (for NSPS subpart VVa) because of its reliance upon the new provision on the allocation of shared storage vessels. Petitioners stated that the EPA did not propose its method for addressing shared storage vessels in the proposed rules published November 7, 2006, giving no opportunity for public comment. The petitioners alleged that the allocation of shared storage vessels is a new requirement ''that cannot lawfully be imposed, with or without notice and comment, on existing sources.'' After further review, we are proposing that a method for assigning shared storage vessels to specific process units is not needed. Therefore, we are proposing to remove the requirements in 40 CFR 60.482–1(g) (for NSPS subpart VV) and 40 CFR 60.482–1a(g) (for NSPS subpart VVa). For sources subject to NSPS subparts VV and VVa, any storage vessel that is located within the battery limits [163] of a process unit is already associated with that process unit; therefore, allocation is not necessary. We are soliciting comment on this proposed decision, specifically regarding situations when allocation would be necessary.

In the November 16, 2007, rulemaking, the EPA finalized new connector monitoring requirements for SOCMI units. Petitioners stated that the ''EPA must reconsider its new connector monitoring requirements for SOCMI units, as the regulated community was denied notice of and an opportunity to comment on this requirement.'' The Petitioners stated that the ''EPA expanded the definition of connector in the final rule without notice and an opportunity to comment.'' The EPA agrees that it did not include these new requirements and this new definition in its proposal published on November 7, 2006. Therefore, we are proposing to remove the connector monitoring provisions from NSPS subpart VVa at 40 CFR 60.482–11a in their entirety. Instead, we are reproposing connector monitoring provisions in NSPS subpart VVb (see section III.C.6.b of this preamble).

Lastly, in the November 16, 2007 rulemaking, the EPA finalized a definition of ''capital expenditure'' in NSPS subpart VVa. Petitioners stated that the ''EPA must reconsider its new definition of 'capital expenditure' in subpart VVa, which was never proposed and which retroactively triggers 'modification' status for facility changes commenced since November 7, 2006.'' The petitioners' concern was specifically limited to the retroactive application, and not application after November 16, 2007, and they did not seek reconsideration with respect to the change in the definition of capital expenditure generally. Therefore, we are proposing to revise the ''capital expenditure'' definition in NSPS subpart VVa at 40 CFR 60.481a to reflect the definition used in NSPS subpart VV at 40 CFR 60.481 for owners or operators that start a new, reconstructed, or modified affected source prior to November 16, 2007 (as is currently required in NSPS subpart VVa due to the stayed provisions). Specifically, we are proposing that the value of ''X'' in the capital expenditure definition in 40 CFR 60.481a be 1982 minus the year of construction for owners or operators that start a new, reconstructed, or modified affected source prior to November 16, 2007, because using any more recent year than 1982 as ''X'' in the equation would require owners and operators to determine former (historical) capital expenditures in order to meet modification and reconstruction requirements. This would not be practical given that a significant amount of time has passed since the capital expenditure provisions were stayed. However, we are proposing to update the definition of ''capital expenditure'' in NSPS subpart VVb for evaluating changes that occur at existing SOCMI facilities after April 25, 2023. We are proposing that the value of ''X'' in the

[163] Statements made in the 1981 proposal preamble (46 FR 1136, January 5, 1981) provide our clear intent of the components included in the definition of process unit. First, the EPA specifically stated that ''[a] process unit includes intermediate storage or surge tanks and all fluid transport equipment connecting the reaction, separation and purification devices.'' 46 FR 1139. This statement clarified that the definition includes components indirectly but still integrally involved in ''producing'' the chemical (*i.e.,* not a reaction, separation or purification unit operation). Second, EPA stated: ''All equipment within the battery limits is included'' but that ''offsite fluid transport and storage facilities are excluded.'' *Id.* These terms, ''within the battery limits'' and ''offsite,'' are industry terms of art used throughout the SOCMI and petroleum refining industry. ''Within the battery limits'' refers to the boundary around the components assembled to perform a specific process function or to produce a product, whereas ''offsite'' refers to locations outside the fence line of a facility. By using these terms, the EPA was emphasizing that all components are part of the ''process unit'' if contained within the battery limit boundary, but are not part of the process unit if located ''offsite.'' *Id.*

capital expenditure definition in 40 CFR 60.481b be 2023 minus the year of construction, where the date of original construction was after January 6, 1982, but before January 1, 2023. Where the date of original construction was on or after January 1, 2023, but on or before April 25, 2023, we are proposing the value of X be 1.

5. Technical and Editorial Changes

We are proposing several technical amendments and definition revisions to improve the clarity and enforceability of certain provisions in the HON, P&R I, and P&R II, and NSPS subpart VVa. These additional proposed revisions and our rationale for the proposed revisions are described in this section.

a. HON Definition Sections

In an effort to remove redundancy and improve consistency, we are proposing to move all of the definitions from NESHAP subparts G and H (*i.e.,* 40 CFR 63.111 and 40 CFR 63.161, respectively) into the definition section of NESHAP subpart F (*i.e.,* 40 CFR 63.101). We are proposing new text in 40 CFR 63.111 to point to 40 CFR 63.101, as follows: ''All terms used in this subpart shall have the meaning given them in the Act and in subpart F of this part.'' We are proposing new text in 40 CFR 63.161 to point to 40 CFR 63.101, as follows: ''All terms used in this subpart shall have the meaning given them in the Act and in subpart F of this part, except as provided in any subpart that references this subpart.'' We are also proposing to revise certain terms that have minor differences between their definition in these subparts. See Table 30 for additional details. These proposed changes will resolve inconsistencies that lead to interpretation issues between each of these subparts. We are not proposing to combine the definitions from NESHAP subpart I into the definitions section of NESHAP subpart F because those definitions are specifically for negotiated non-SOCMI processes.

TABLE 30—PROPOSED DEFINITION CHANGES TO RESOLVE MINOR DIFFERENCES BETWEEN NESHAP F, G, AND H

Current definition in NESHAP subpart F	Current definition in NESHAP subpart G	Current definition in NESHAP subpart H	Proposed revised definition in NESHAP subpart F
None	*Closed-vent system* means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission point to a control device.	*Closed-vent system* means a system that is not open to the atmosphere and that is composed of hard-piping, ductwork, connections and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device or back into a process.	*Closed-vent system* means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission point to a control device.
Control device means any combustion device, recovery device, or recapture device. Such equipment includes, but is not limited to, absorbers, carbon adsorbers, condensers, incinerators, flares, boilers, and process heaters. For process vents (as defined in this section), recapture devices are considered control devices but recovery devices are not considered control devices. For a steam stripper, a primary condenser is not considered a control device.	*Control device* means any combustion device, recovery device, or recapture device. Such equipment includes, but is not limited to, absorbers, carbon adsorbers, condensers, incinerators, flares, boilers, and process heaters. For process vents, recapture devices are considered control devices but recovery devices are not considered control devices, and for a steam stripper, a primary condenser is not considered a control device.	*Control device* means any equipment used for recovering, recapturing, or oxidizing organic hazardous air pollutant vapors. Such equipment includes, but is not limited to, absorbers, carbon adsorbers, condensers, flares, boilers, and process heaters.	*Control device* means any combustion device, recovery device, or recapture device. Such equipment includes, but is not limited to, absorbers, carbon adsorbers, condensers, incinerators, flares, boilers, and process heaters. For process vents, recapture devices are considered control devices but recovery devices are not considered control devices, and for a steam stripper, a primary condenser is not considered a control device.
None	*First attempt at repair* means to take action for the purpose of stopping or reducing leakage of organic material to the atmosphere.	*First attempt at repair* means to take action for the purpose of stopping or reducing leakage of organic material to the atmosphere, followed by monitoring as specified in § 63.180 (b) and (c), as appropriate, to verify whether the leak is repaired, unless the owner or operator determines by other means that the leak is not repaired.	*First attempt at repair* means to take action for the purpose of stopping or reducing leakage of organic material to the atmosphere, followed by monitoring as specified in § 63.180 (b) and (c), as appropriate, to verify whether the leak is repaired, unless the owner or operator determines by other means that the leak is not repaired.
Initial start-up means the first time a new or reconstructed source begins production, or, for equipment added or changed as described in § 63.100 (l) or (m) of this subpart, the first time the equipment is put into operation. Initial start-up does not include operation solely for testing equipment. For purposes of subpart G of this part, initial start-up does not include subsequent start-ups (as defined in this section) of chemical manufacturing process units following malfunctions or shutdowns or following changes in product for flexible operation units or following recharging of equipment in batch operation. For purposes of subpart H of this part, initial start-up does not include subsequent start-ups (as defined in § 63.161 of subpart H of this part) of process units (as defined in § 63.161 of subpart H of this part) following malfunctions or process unit shutdowns.	None	*Initial start-up* means the first time a new or reconstructed source begins production. Initial start-up does not include operation solely for testing equipment. Initial start-up does not include subsequent start-ups (as defined in this section) of process units following malfunctions or process unit shutdowns.	*Initial start-up* means the first time a new or reconstructed source begins production, or, for equipment added or changed as described in § 63.100 (l) or (m) of this subpart, the first time the equipment is put into operation. Initial start-up does not include operation solely for testing equipment. For purposes of subpart G of this part, initial start-up does not include subsequent start-ups (as defined in this section) of chemical manufacturing process units following malfunctions or shutdowns or following changes in product for flexible operation units or following recharging of equipment in batch operation. For purposes of subpart H of this part, initial start-up does not include subsequent start-ups (as defined in § 63.161 of subpart H of this part) of process units (as defined in § 63.161 of subpart H of this part) following malfunctions or process unit shutdowns.

TABLE 30—PROPOSED DEFINITION CHANGES TO RESOLVE MINOR DIFFERENCES BETWEEN NESHAP F, G, AND H—Continued

Current definition in NESHAP subpart F	Current definition in NESHAP subpart G	Current definition in NESHAP subpart H	Proposed revised definition in NESHAP subpart F
None	*Process unit* has the same meaning as chemical manufacturing process unit as defined in this section.	*Process unit* means a chemical manufacturing process unit as defined in subpart F of this part, a process subject to the provisions of subpart I of this part, or a process subject to another subpart in 40 CFR part 63 that references this subpart.	*Process unit* means a chemical manufacturing process unit as defined in subpart F of this part, a process subject to the provisions of subpart I of this part, or a process subject to another subpart in 40 CFR part 63 that references this subpart.
Surge control vessel means feed drums, recycle drums, and intermediate vessels. Surge control vessels are used within a chemical manufacturing process unit when in-process storage, mixing, or management of flow rates or volumes is needed to assist in production of a product.	*Surge control vessel* means feed drums, recycle drums, and intermediate vessels. Surge control vessels are used within a chemical manufacturing process unit when in-process storage, mixing, or management of flow rates or volumes is needed to assist in production of a product.	*Surge control vessel* means feed drums, recycle drums, and intermediate vessels. Surge control vessels are used within a process unit (as defined in the specific subpart that references this subpart) when in-process storage, mixing, or management of flow rates or volumes is needed to assist in production of a product.	*Surge control vessel* means feed drums, recycle drums, and intermediate vessels. Surge control vessels are used within a chemical manufacturing process unit when in-process storage, mixing, or management of flow rates or volumes is needed to assist in production of a product.

Finally, we are also proposing editorial changes that clarify reference citations in the definitions (to properly point to the correct HON subpart) for ''annual average concentration,'' ''annual average flow rate,'' ''closed biological treatment process,'' ''compliance date,'' ''connector,'' ''continuous record,'' ''equipment leak,'' ''group 1 process vent,'' ''group 1 storage vessel,'' ''group 1 wastewater stream,'' ''group 2 process vent,'' ''halogenated vent stream,'' ''in organic hazardous air pollutant service,'' ''in volatile organic compound service,'' ''instrumentation system,'' ''point of determination,'' ''process vent,'' ''process wastewater stream,'' ''recovery device,'' ''reference control technology for storage vessels,'' ''reference control technology for wastewater,'' ''repaired,'' ''table 8 compound,'' ''table 9 compound,'' ''total resource effectiveness index value,'' ''treatment process,'' ''wastewater,'' and ''wastewater stream''.

b. Monitoring for Adsorbers That Cannot Be Regenerated and Regenerative Adsorbers That Are Regenerated Offsite

We are proposing to add monitoring requirements at 40 CFR 63.114(a)(5)(v), 40 CFR 63.120(d)(1)(iii), 40 CFR 63.127(b)(4), and 40 CFR 63.139(d)(5) (for HON), and 40 CFR 63.484(t), 40 CFR 63.485(x), and 40 CFR 63.489(b)(10) (for P&R I) for adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite because the HON and P&R I do not currently include specific monitoring requirements for this type of APCD.[164] We are proposing owners and operators of this type of APCD use dual adsorbent beds in series. 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.[165] The proposed monitoring requirements for non-regenerative adsorbers fulfill the EPA's obligation to establish monitoring requirements to ensure continuous compliance with the emission limits (*e.g.,* 98-percent control or a 20 ppm TOC outlet concentration) when owners or operators are using these types of control devices to comply with the standards. 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.

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 on the outlet of the first adsorber bed in series using a sample port; and they be taken monthly (if the bed has at least two months of the bed design life remaining), weekly (if the bed has between two months and two weeks of bed design life remaining), or daily (once the bed has less than two weeks of bed design life remaining). Also, owners and operators would be required to establish an average adsorber bed life from a design evaluation as well as conduct monitoring no later than 3 days after a bed is put into service as the first bed to confirm that it is functioning properly.

We used the EPA's cost algorithms to estimate the cost of a second carbon adsorber bed for two adsorber scenarios. In the first scenario, the EPA estimated the cost of a replaceable-canister type adsorber holding 180 lbs of carbon. The total capital investment of the second bed (including installation and auxiliary equipment) is about $6,000, and the total annual cost is about $800. In the second scenario, we estimated the cost of an adsorber that holds 3,000 lbs of carbon and in which the carbon is removed and replaced by fresh carbon when needed. The total capital investment of the second bed (including installation and auxiliary equipment) is about $26,600, and the total annual cost is about $2,250. We assumed no additional labor would be required for operation and maintenance of the second adsorber bed compared to operating and maintaining a single bed adsorber. A more thorough discussion of this analysis is included in the document titled *Analysis of Monitoring Costs and Dual Bed Costs for Non-Regenerative Carbon Adsorbers Used in the SOCMI Source Category that are Associated with Processes Subject to HON and for Non-Regenerative Carbon Adsorbers that are Associated with Processes Subject to Group I Polymers and Resins NESHAP,* which is available in the docket for this rulemaking.

We anticipate that the use of two beds in series and the use of monitoring will maximize the life of each bed and reduce adsorber media replacement costs. In both scenarios described above, we assumed that the first bed would be replaced when it reached breakthrough (*i.e.,* its equilibrium capacity, which is when the adsorption zone of the bed reaches the bed outlet and the volatile

[164] We did not find any P&R II facilities that have processes controlled by adsorbers.

[165] We are proposing to define the term ''breakthrough'' at 40 CFR 63.101 (for HON) and 40 CFR 63.482 (for P&R I) to mean the time when the level of HAP or TOC detected is at the highest concentration allowed to be discharged from an adsorber system.

concentration in the exhaust begins to rise) based on monitoring at the outlet of the first bed. At that time, the owner or operator would divert the flow from the first to the second bed, the canisters or carbon would be replaced in the first bed, and it would then be returned to service as the second bed in the series. We did not include the cost of replacing the canisters or the carbon in the annual costs because the amount of carbon used would not increase as a result of using a second bed in series. We anticipate that having two beds in series and performing monitoring at the outlet of the first bed will reduce the amount of adsorber media (*e.g.,* activated carbon) used by facilities because they will not have to replace the adsorber media until it reaches equilibrium capacity. With only a single bed and no monitoring, facilities would need to replace the adsorber media more frequently based on the estimated working capacity of the bed (which is a fraction of the equilibrium capacity) so as to maintain compliance and to avoid exceeding outlet concentration limits.

As previously mentioned in section III.C.3.b of this preamble, we are also proposing these same monitoring requirements for NSPS subpart IIIa, NNNa, and RRRa under CAA section 111(b)(1)(B). The EPA acknowledges that these proposed requirements could be considered under CAA section 112(d)(6) because of the specification to have two adsorber beds in series, instead of as a proposed change to the monitoring requirements. However, our rationale for why a second bed is needed would not be any different if we described these proposed changes under CAA section 112(d)(6) instead of as a monitoring change. These changes are being proposed because the current HON and P&R I contain no monitoring requirements for non-regenerative adsorbers.

c. Calibration Drift Assessment (Related to NSPS Subpart VVa)

We are proposing several corrections to the calibration drift assessment requirements in NSPS subpart VVa at 40 CFR 60.485a(b)(2). These amendments are being proposed to: (1) Correct a regulatory citation to read ''§ 60.486a(e)(8)'' instead of ''§ 60.486a(e)(7)''; (2) remove the extraneous sentence ''Calculate the average algebraic difference between the three meter readings and the most recent readings and the most recent calibration value.''; (3) provide clarity in the mathematical step of the assessment by replacing the sentence ''Divide this algebraic difference by the initial calibration value and multiply by 100 to express the calibration drift as a percentage.'' with ''Divide the arithmetic difference of the initial and post-test calibration response by the corresponding calibration gas value for each scale and multiply by 100 to express the calibration drift as a percentage.''; and (4) provide clarity by making other minor textural changes to the provisions related to the procedures for when a calibration drift assessment shows negative or positive drift of more than 10 percent. We note that we are proposing these same calibration drift assessment requirements in NSPS subpart VVb at 40 CFR 60.485b(b)(2).

d. Control of Sweep, Purge, and Inert Blankets From IFRs

The EPA is proposing that owners and operators that use a sweep, purge, or inert blanket between the IFR and fixed roof of a storage vessel would be required to route emissions through a closed vent system and control device (see proposed 40 CFR 63.119(b)(7)).

e. Overlap Provisions

The EPA is proposing to remove the provisions that allow compliance with certain portions of 40 CFR part 264, subpart AA or CC in lieu of portions of NESHAP subpart G (see proposed 40 CFR 63.110(h)) because revisions being proposed in the HON are and not reflective of the same standards and associated monitoring, recordkeeping, and reporting requirements for certain control devices such as flares. In addition, requiring all facilities to have the same set of monitoring, recordkeeping, and reporting requirements allows for better enforceability of the rule by the EPA.

Also, the EPA is proposing to remove the provisions that allow compliance with certain portions of 40 CFR part 65 in lieu of portions of NESHAP subparts G and H (see proposed 40 CFR 63.110(i) and 40 CFR 60.160(g)) because our proposed requirements for HON processes (*i.e.,* requirements we are proposing for heat exchange systems, storage vessels, process vents, transfer racks, wastewater, and equipment leaks) are more stringent than those required by 40 CFR part 65.

f. Other Editorial Corrections

The EPA is proposing additional changes that address technical and editorial corrections for the HON as follows:

- The EPA is proposing to remove the word ''Organic'' before Hazardous Air Pollutants from the 40 CFR part 63 titles of subparts F through I to reflect the acronym NESHAP more accurately and for consistency in naming convention across all 40 CFR part 63 subparts; and
- The EPA is proposing to add the phrase ''and Fenceline Monitoring for All Emission Sources'' to the title of NESHAP subpart H to reflect the contents of the NESHAP more accurately. The EPA is proposing to include fenceline monitoring standards in NESHAP subpart H (see section III.C.7 of this preamble).

6. Listing of 1-bromopropane as a HAP

On January 5, 2022, the EPA published in the **Federal Register** (87 FR 393) a final rule amending the list of HAP under the CAA to add 1-bromopropane (1-BP) in response to public petitions previously granted by the EPA. For the source categories covered by the HON, P&R I, and P&R II, we do not believe that the inclusion of 1-BP as an organic HAP would have any effect on the MACT standards. First, 1-BP is not a SOCMI chemical. Furthermore, we have no information showing that 1-BP is used, produced, or emitted to make any SOCMI chemicals regulated by the HON, and we are unaware of any information showing that it is used, produced, or emitted in the production of any of the polymers and resins processes covered by the P&R I or P&R II. Accordingly, we believe there is no further action required by the EPA needed to address emissions of 1-BP from these source categories. We solicit comment on this approach, and should new information submitted to the EPA show that 1-BP is emitted from these source categories, the EPA will consider this information in the context of developing any MACT standards that may be needed to address emissions of 1-BP. We also note that in many instances in the HON and P&R I, many MACT emission standards allow facilities to comply with a total organic compound concentration standard (*e.g.,* 20 ppmv), which could adequately regulate emissions of 1-BP should we receive additional information that it is emitted from these source categories.

F. What compliance dates are we proposing, and what is the rationale for the proposed compliance dates?

1. HON, P&R I, and P&R II

The proposed amendments to the HON, P&R I, and P&R II in this rulemaking for adoption under CAA section 112(d)(2) and (3) (see section III.D of this preamble) and CAA section 112(d)(6) (see section III.C of this preamble) are subject to the compliance deadlines outlined in the CAA under section 112(i). The proposed amendments to the HON and P&R I in

this rulemaking for adoption under CAA section 112(f) (see section III.C of this preamble) are subject to the compliance deadlines outlined in the CAA under section 112(f)(4).

For all of the requirements we are proposing under CAA sections 112(d)(2), (3), and (d)(6), we are proposing that all existing affected sources and all affected sources that were new sources under the current HON and P&R I (*i.e.,* they commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023), 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) and 5 U.S.C. 801(3), all new affected sources that commenced construction or reconstruction after April 25, 2023 would be required to comply with these requirements within 60 days after the publication of the final amendments to the HON, P&R I, and P&R II standards or upon startup, whichever is later.

For all of the requirements we are proposing under CAA sections 112(f), 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 for all affected sources that were new sources under the current HON and P&R I (*i.e.,* they commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023, to comply with the proposed EtO requirements (for HON) and the proposed chloroprene requirements (for P&R I affected sources producing neoprene). For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the EtO requirements (for HON) and the chloroprene requirements (for P&R I affected sources producing neoprene) within 60 days after the publication date of the final rule (or upon startup, whichever is later).

a. Rationale for Proposed Compliance Dates of Proposed CAA Section 112(d)(2) and (3) Amendments

We are proposing new operating and monitoring requirements for the HON and P&R I 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 CMPUs and EPPUs 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 CMPU or EPPU to be shutdown. Therefore, for all existing affected sources, and all new affected sources under the current HON and P&R I that commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023, we are proposing that it is necessary to provide 3 years after the publication 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 commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the new operating and monitoring requirements for flares within 60 days after the publication 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 for the HON and P&R I. 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 under the current HON and P&R I that commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023, to provide 3 years after the publication date of the final rule (or upon startup, whichever is later) 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 commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the new vent control requirements for bypasses within 60 days after the publication date of the final rule (or upon startup, whichever is later).

For atmospheric PRD in HAP service, we are establishing a work practice standard in the HON and P&R I 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 under the current HON and P&R I that commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023, we are proposing a compliance date of 3 years from the publication 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 commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the work practice standards for atmospheric PRD releases within 60 days after the publication date of the final rule (or upon startup, whichever is later).

We are also establishing work practice standards in the HON and P&R I for maintenance activities. We anticipate sources will need time to review and update their standard operating procedures for maintenance activities; identify the most appropriate preventive measures or control approaches; design, install, and test the control systems; and install necessary process instrumentation and safety systems if so required. Therefore, for all existing affected sources, and all new affected sources under the current HON and P&R I that commenced construction or reconstruction after December 31, 1992

(for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023, we are proposing a compliance date of 3 years from the publication date of the final rule (or upon startup, whichever is later) for owners or operators to comply with the work practice standards for maintenance activities. For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the work practice standards for maintenance activities within 60 days after the publication date of the final rule (or upon startup, whichever is later).

Under CAA section 112(d)(2) and (3), we are also proposing new dioxins and furans emission limits for the HON, P&R I, and P&R II. The proposed provisions may require additional time to plan, purchase, and install equipment for dioxins and furans control. Therefore, for all existing affected sources, and all new affected sources under the current HON, P&R I, and P&R II that commenced construction or reconstruction after December 31, 1992 (for HON), or after May 16, 1994 (for P&R II), or after June 12, 1995 (for P&R I), and on or before April 25, 2023, we are proposing a compliance date of 3 years from the publication date of the final rule (or upon startup, whichever is later) for owners or operators to comply with the dioxins and furans emission limits. For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the dioxins and furans emission limits within 60 days after the publication date of the final rule (or upon startup, whichever is later).

Other amendments we are proposing under CAA section 112(d)(2) and (3) include LDAR requirements for HON and P&R I pressure vessels, process vent control requirements for certain HON and P&R I surge control vessels and bottoms receivers, control requirements for certain HON transfer racks with an operating pressure greater than 204.9 kPa, and a LDAR program for P&R II heat exchange systems for BLR and WSR sources and equipment leaks for WSR sources in P&R II. Any of these proposed provisions may require additional time to plan, purchase, and install equipment for emissions control; and even if not, 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. Therefore, for all existing affected sources, and all new affected sources under the current rules that commenced construction or reconstruction after December 31, 1992 (for HON), or after May 16, 1994 (for P&R II), or after June 12, 1995 (for P&R I), and on or before April 25, 2023, we are proposing a compliance date of 3 years from the publication date of the final rule (or upon startup, whichever is later) for owners or operators to comply with these other proposed amendments. For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with these other proposed amendments within 60 days after the publication date of the final rule (or upon startup, whichever is later).

b. Rationale for Proposed Compliance Dates of Proposed CAA Section 112(d)(6) Amendments

As a result of our technology review for HON and P&R I heat exchange systems, we are proposing to replace the existing HON and P&R I 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 under the current rules that commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023, must comply with the new monitoring requirements for heat exchange systems no later than 3 years from the publication date of the final rule (or upon startup, whichever is later). For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the new monitoring requirements for heat exchange systems within 60 days after the publication date of the final rule (or upon startup, whichever is later).

Under our technology review for HON and P&R I storage vessels under CAA section 112(d)(6), we are revising HON and P&R I to reflect more stringent storage vessel capacity and MTVP thresholds. We project that some owners and operators will need to install new control equipment on certain storage vessels because of the proposed applicability revisions. The addition of new control equipment would require engineering design, solicitation, and review of vendor quotes, and contracting and installation of the equipment, which would need to be timed with process unit outage and operator training. Therefore, we are proposing that all existing affected sources, and all new affected sources under the current rules that commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023, must comply with the new storage vessel requirements no later than 3 years from the publication date of the final rule (or upon startup, whichever is later). For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the new storage vessel requirements within 60 days after the publication date of the final rule (or upon startup, whichever is later).

We are also proposing, pursuant to CAA section 112(d)(6), to remove the 50 ppmv and 0.005 scmm Group 1 process vent thresholds from the HON Group 1 process vent definition and P&R I Group 1 continuous front-end process vent definition, and instead require owners and operators of HON or P&R I process vents that emit greater than or equal to 1.0 lb/hr of total organic HAP to reduce emissions of organic HAP using a flare meeting the proposed operating and monitoring requirements for flares; or reduce emissions of total organic HAP or TOC by 98 percent by weight or to an exit concentration of 20 ppmv, whichever is less stringent. Additionally, as a result of our technology review for P&R I batch front-end process vents, we are proposing owners and operators of batch front-end process vents that release a total of annual organic HAP emissions greater than or equal to 4,536 kg/yr (10,000 lb/yr) from all batch front-end process vents combined would be required to reduce emissions of organic HAP from these process vents using a flare meeting the proposed operating and monitoring requirements for flares; or reduce emissions of organic HAP or TOC by 90 percent by weight (or to an exit concentration of 20 ppmv if considered an ''aggregate batch vent stream'' as defined by the rule). We project that some owners and operators will need to install new control equipment and/or new hard-piping or duct work for certain process vents because of the proposed applicability revisions. The addition of new control equipment would require engineering design, solicitation, and review of vendor quotes, and contracting and installation of the equipment, which would need to be timed with process unit outage and

operator training. Therefore, we are proposing that all existing affected sources, and all new affected sources under the current rules that commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023, must comply with the new process vent requirements no later than 3 years from the publication date of the final rule (or upon startup, whichever is later). For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the new process vent requirements within 60 days after the publication date of the final rule (or upon startup, whichever is later).

Compliance dates for the fenceline monitoring provisions proposed under CAA section 112 (d)(6) consider the amount of time that it will take owners and operators to develop their siting plans and secure the capabilities to conduct the monitoring and analyze the results. For fenceline monitoring, the compliance timeline also must consider the timeline for controls to be installed and operational before root cause analysis and application of corrective measures can take place. However, the actual monitoring can and must begin at least a year before to develop the annual average concentration baseline. Therefore, we are proposing that owners and operators of all existing sources and all new affected sources under the current rules that commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023 must begin fenceline monitoring one year after the publication date of the final rule and must perform root cause analysis and apply corrective action requirements upon exceedance of an annual average concentration action level starting 3 years after the publication date of the final rule (*i.e.,* such that by after two years after the publication date of this rule, facilities will have installed controls to reduce EtO and chloroprene (as discussed in section III.F.1.c of this preamble) and be able to compare 1 year of data to the annual average concentration action level by year 3). For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators begin fenceline monitoring within 60 days after the publication date of the final rule (or upon startup, whichever is later). We are also proposing to require quarterly reporting of fenceline results beginning 1 year after monitoring begins.

c. Rationale for Proposed Compliance Dates of Proposed CAA Section 112(f) Amendments

As previously mentioned in this preamble, we are proposing under CAA section 112(f), new provisions considering results of the risk assessments to address emissions of EtO from equipment leaks, flares, heat exchange systems, maintenance vents, process vents, storage vessels, and wastewater at HON processes; and emissions of chloroprene from continuous front-end process vents, batch front-end process vents, maintenance vents, storage vessels, and wastewater associated with neoprene production processes subject to P&R I. The proposed provisions will require additional time to plan, purchase, and install equipment for EtO or chloroprene control. For example, for HON process vents in EtO service, if the affected source cannot demonstrate 99.9 percent control of EtO emissions, or reduce EtO 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 publication date of the final rule, or upon startup, whichever is later for all existing affected sources, and all new affected sources under the current rules that commenced construction or reconstruction after December 31, 1992 (for HON) or after June 12, 1995 (for P&R I), and on or before April 25, 2023 to comply with the proposed EtO and chloroprene requirements. For all new affected sources that commence construction or reconstruction after April 25, 2023, we are proposing owners or operators comply with the EtO and chloroprene requirements within 60 days after the publication date of the final rule (or upon startup, whichever is later).

d. Rationale for Proposed Compliance Dates of Other Proposed Amendments

We are proposing to change the HON, P&R I, and P&R II requirements for SSM by removing the exemption from the requirements to meet the standard during SSM periods, proposing alternative standards where needed, and by removing the requirement to develop and implement an SSM plan. In addition, we are proposing to remove all of the regulatory affirmative defense provisions from P&R I. We are also proposing electronic reporting requirements for the HON, P&R I, and P&R II. For details on these proposed amendments, see section III.E of this preamble. Except for the removal of the affirmative defense provisions in P&R I, 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. As previously mentioned, 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 publication 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 publication date of the final rule, whichever is later. However, we are proposing to provide 60 days after the publication date of the final rule (or upon startup, whichever is later) for owners or operators of all affected sources to comply with the requirement to report electronically. We are also proposing to provide 60 days after the publication date of the final rule (or upon startup, whichever is later) for owners or operators of P&R I affected sources to comply with the removal of the affirmative defense provisions.

2. NSPS Subparts VVb, IIIa, NNNa, RRRa

We are proposing that all sources of equipment leaks in the SOCMI (regulated under 40 CFR part 60, subpart VVb) and all SOCMI air oxidation unit processes, distillation operations, and reactor processes (regulated under 40 CFR part 60, subparts IIIa, NNNa, and RRRa, respectively), that commenced construction, reconstruction, or modification on or after April 25, 2023, would need to meet the requirements of the new NSPS upon startup of the new, reconstructed or modified facility or 60

days after publication of the final rule, whichever is later. This proposed compliance schedule is consistent with the requirements in section 111 of the CAA and the Congressional Review Act.

IV. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected sources?

There are approximately 207 facilities subject to the HON, 19 P&R I facilities (and 10 of these P&R I facilities are collocated with HON processes), and 5 P&R II facilities (and 3 of these P&R II facilities are collocated with HON processes). We also estimate that two additional HON facilities will be newly constructed over the next three years. The OECA's ECHO tool (*https://echo.epa.gov*) indicates there are currently 592 SOCMI facilities subject to subpart VV or VVa; and 284 SOCMI facilities subject to at least one of the process vent NSPS subparts III, NNN, and/or RRR. The list of facilities is available in the document titled *Lists of Facilities Subject to the HON, Group I and Group II Polymers and Resins NESHAPs, and NSPS subparts VV, VVa, III, NNN, and RRR,* which is available in the docket for this rulemaking. We estimated that there would be one new greenfield facility, six new affected facilities constructed at existing plant sites, and 12 modified/reconstructed facilities subject to NSPS subpart IIIa, NNNa, and/or RRRa in the next 5 years. We estimated there would be one new greenfield facility, 34 new affected facilities constructed at existing plant sites, and one modified facility subject to NSPS subpart VVb in the next 5 years (and no affected facilities would trigger NSPS subpart VVa reconstruction requirements).

B. What are the air quality impacts?

This proposed action would reduce HAP and VOC emissions from HON, P&R I, and P&R II emission sources as well as the NSPS SOCMI air oxidation unit processes, distillation operations, reactor processes, and equipment leaks sources. Considering reported emissions inventories for EtO and chloroprene, we estimate that the proposed amendments to the NESHAP would reduce overall HAP emissions from the SOCMI source category by approximately 1,009 tpy, reduce overall HAP emissions from the P&R I source categories by approximately 185 tpy, and reduce overall HAP emissions from the P&R II source categories by approximately 1 tpy. We note that these emissions reductions do not consider the potential excess emissions reductions from flares that could result from the proposed monitoring requirements; we estimate flare excess emissions reductions of 4,858 tpy HAP and 19,889 tpy VOC. Based on our analysis of the proposed actions described in sections III.C.3.b and III.C.6.b of this preamble for the NSPS, we estimate that the proposed amendments to the NSPS would reduce VOC emissions from the SOCMI source category by approximately 1,609 tpy. Emission reductions and secondary impacts (*e.g.,* emission increases associated with supplemental fuel or additional electricity) by rule are listed below.

1. HON

For the HON, the EPA estimates HAP and VOC emission reductions of approximately 1,009 and 1,817 tpy, respectively. The EPA estimates these reductions include an approximate 58 tpy reduction in EtO emissions (from reported emissions inventories). The EPA also estimates that the proposed action would result in additional emissions of 714 tpy of carbon monoxide (CO), 609,761 tpy of carbon dioxide (CO_2), 277 tpy of nitrogen oxides (NO_X) (including 5.3 tpy of nitrous oxide (N_2O)), 12.7 tpy of particulate matter, 1.0 tpy of sulfur dioxide (SO_2), and a reduction of 20,177 tpy of methane emissions. More information about the estimated emission reductions and secondary impacts of this proposed action for the HON can be found in the RIA accompanying this proposal and in the documents referenced in sections III.B through III.D of this preamble.

2. P&R I

For P&R I, the EPA estimates HAP and VOC emission reductions of approximately 185 and 199 tpy, respectively. The EPA estimates these reductions include an approximate 14 tpy reduction in chloroprene emissions (from reported emissions inventories). The EPA also estimates that the proposed action would result in additional emissions of 110 tpy of CO, 115,975 tpy of CO_2, 75 tpy of NO_X (including 1.5 tpy of N_2O), 4.8 tpy of particulate matter, 0.4 tpy of SO_2, and a reduction of 2,018 tpy of methane emissions. More information about the estimated emission reductions and secondary impacts of this proposed action for P&R I can be found in the RIA accompanying this proposal and in the documents referenced in sections III.B through III.D of this preamble.

3. P&R II

For P&R II, the EPA estimates 1 tpy of HAP and VOC emission reductions. The EPA also estimates that the proposed action would not have any secondary pollutant impacts. More information about the estimated emission reductions and secondary impacts of this proposed action for P&R II can be found in the RIA accompanying this proposal and in the documents referenced in sections III.B through III.D of this preamble.

4. NSPS Subpart VVb

For the proposed NSPS subpart VVb, the EPA estimates VOC emission reductions of approximately 340 tpy. The EPA estimates that the proposed action would not have any secondary pollutant impacts. More information about the estimated emission reductions and secondary impacts of this proposed action for NSPS subpart VVb can be found in the RIA accompanying this proposal and in the document titled *CAA 111(b)(1)(B) review for the SOCMI Equipment Leaks NSPS Subpart VVa,* which is available in the docket for this rulemaking.

5. NSPS Subparts IIIa, NNNa, and RRRa

For the proposed NSPS subparts IIIa, NNNa, and RRRa, the EPA estimates VOC emission reductions of approximately 1,269 tpy. The EPA estimates that the proposed action result in additional emissions of 21.5 tpy of CO, 15,370 tpy of CO_2, and 4.0 tpy of NO_X (including 0.1 tpy of N_2O), and a reduction of 757 tpy of methane emissions. More information about the estimated emission reductions and secondary impacts of this proposed action for NSPS subparts IIIa, NNNa, and RRRa can be found in the RIA accompanying this proposal and in the document titled *CAA 111(b)(1)(B) review for the SOCMI air oxidation unit processes, distillation operations, and reactor processes NSPS subparts III, NNN, and RRR,* which is available in the docket for this rulemaking.

C. What are the cost impacts?

This proposed action would cumulatively cost (in 2021 dollars) approximately $501 million in total capital costs and $190 million per year in total annualized costs (including product recovery), based on our analysis of the proposed action described in sections III.B through III.D of this preamble. Costs by rule are listed below.

1. HON

For the HON, the EPA estimates this proposed action would cost approximately $441 million in total capital costs and $166 million per year in total annualized costs (including product recovery). More information about the estimated cost of this

proposed action for the HON can be found in the documents referenced in sections III.B through III.D of this preamble.

2. P&R I

For P&R I, the EPA estimates this proposed action would cost approximately $25 million in total capital costs and $15 million per year in total annualized costs (including product recovery). More information about the estimated cost of this proposed action for P&R I can be found in the documents referenced in sections III.B through III.D of this preamble.

3. P&R II

For P&R II, the EPA estimates this proposed action would cost approximately $2.9 million in total capital costs and $1.7 million per year in total annualized costs (including product recovery). More information about the estimated cost of this proposed action for P&R II can be found in the documents referenced in sections III.B through III.D of this preamble.

4. NSPS Subpart VVb

For the proposed NSPS subpart VVb, the EPA estimates this proposed action would cost approximately $7.7 million in total capital costs and $1.1 million per year in total annualized costs (including product recovery). More information about the estimated cost of this proposed action for NSPS subpart VVb can be found in the document titled *CAA 111(b)(1)(B) review for the SOCMI Equipment Leaks NSPS Subpart VVa,* which is available in the docket for this rulemaking.

5. NSPS Subparts IIIa, NNNa, and RRRa

For the proposed NSPS subparts IIIa, NNNa, and RRRa, the EPA estimates this proposed action would cost approximately $24 million in total capital costs and $5.8 million per year in total annualized costs (including product recovery). More information about the estimated cost of this proposed action for NSPS subparts IIIa, NNNa, and RRRa can be found in the document titled *CAA 111(b)(1)(B) review for the SOCMI air oxidation unit processes, distillation operations, and reactor processes NSPS subparts III, NNN, and RRR,* which is available in the docket for this rulemaking.

D. What are the economic impacts?

The EPA conducted economic impact analyses for this proposal, in a document titled *Regulatory Impact Analysis,* which is available in the docket for this action. The economic impact analyses contain two parts. The economic impacts of the proposal on small entities are calculated as the percentage of total annualized costs incurred by affected ultimate parent owners to their revenues. This ratio provides a measure of the direct economic impact to ultimate parent owners of HON, P&R I, and P&R II facilities and NSPS VVb, IIIa, NNNa, and RRRa facilities while presuming no impact on consumers. We estimate the average small entity impacted by the proposal will incur total annualized costs of 0.46 percent of their revenue, with none exceeding 1.5 percent, not considering product recovery from compliance. With product recovery, the EPA estimates that the average small entity impacted by the proposal will incur total annualized costs of 0.43 percent of their revenue, with none exceeding 1.3 percent. We estimate that 20 percent (2 in total) of impacted small entities will incur total annualized costs greater than 1 percent of their revenue, and none will incur total annualized costs greater than 3 percent of their revenue. These estimates are unchanged when including product recovery. This is based on a conservative estimate of costs imposed on ultimate parent companies, where total annualized costs are imposed on a facility are at the upper bound of what is possible under the rule and do not include product recovery as a credit.

In addition, we provide an economic impact analysis using costs of the HON and Polymers and Resins I and II NESHAP that estimates changes in affected chemical product price and output related to the impact of the compliance costs on producers and consumers of such chemical products for each of these proposed rules. There are seven chemical products included in the economic impact analysis—butadiene, styrene, acetone, acrylonitrile, ethylene dichloride, ethylene glycol, and ethylene oxide. For the HON, chemical product prices are estimated to increase from less than 0.01 percent to 0.61 percent, and output by product is estimated to decrease by less than 0.01 percent to 0.54 percent. For the two Polymers and Resins NESHAP, chemical product prices are estimated to increase by less than 0.01 percent to 0.05 percent, and output by product is estimated to decrease by less than 0.01 percent to 0.09 percent. More explanation of these economic impacts can be found in the Regulatory Flexibility Act (RFA) section later in this preamble and in the RIA for this proposed rulemaking.

E. What are the benefits?

The emissions controls required by these rules are expected to reduce emissions of a number of HAP. The health effects associated with the main HAP of concern from SOCMI (found within the HON), P&R I, and P&R II source categories are discussed fully in Chapter 4 of the RIA: ethylene oxide (Section 4.1.1), chloroprene (Section 4.1.2), benzene (Section 4.1.3), 1,3-butadiene (Section 4.1.4), vinyl chloride (Section 4.1.5), ethylene dichloride (Section 4.1.6), chlorine (Section 4.1.7), maleic anhydride (Section 4.1.8) and acrolein (Section 4.1.9). This proposal is projected to reduce ethylene oxide emissions from HON processes by approximately 58 tons per year (tpy) and reduce chloroprene emissions from Neoprene Production processes in P&R I by approximately 14 tpy. We also estimate that the proposed amendments to the NESHAP would reduce other HAP emissions (excluding ethylene oxide and chloroprene) from the SOCMI, P&R I, and P&R II source categories by approximately 1,123 tpy. We also estimate that the proposed amendments to the NESHAP will reduce excess emissions of HAP from flares in the SOCMI and P&R I source categories by an additional 4,858 tpy. The Agency was unable to estimate HAP emission reductions for the proposed amendments to the NSPS in this rulemaking.

Quantifying and monetizing the economic value of reducing the risk of cancer and non-cancer effects is made difficult by the lack of a central estimate of estimate of cancer and non-cancer risk and estimates of the value of an avoided case of cancer (fatal and non-fatal) and morbidity effects. Due to methodology and data limitations, we did not attempt to monetize the health benefits of reductions in HAP in this analysis. Instead, we are providing a qualitative discussion in the RIA of the health effects associated with HAP emitted from sources subject to control under the proposed action.

The emission controls installed to comply with these proposed rules are also expected to reduce VOC emissions which, in conjunction with NO_X and in the presence of sunlight, form ground-level ozone (O_3). This section reports the estimated ozone-related benefits of reducing VOC emissions in terms of the number and value of avoided ozone-attributable deaths and illnesses.

As a first step in quantifying O_3-related human health impacts, the EPA consults the *Integrated Science*

Assessment for Ozone (Ozone ISA) [166] as summarized in the Technical Support Document for the Final Revised Cross State Air Pollution Rule Update.[167] This document synthesizes the toxicological, clinical, and epidemiological evidence to determine whether each pollutant is causally related to an array of adverse human health outcomes associated with either acute (*i.e.,* hours or days-long) or chronic (*i.e.,* years-long) exposure. For each outcome, the Ozone ISA reports this relationship to be causal, likely to be causal, suggestive of a causal relationship, inadequate to infer a causal relationship, or not likely to be a causal relationship.

In brief, the Ozone ISA found short-term (less than one month) exposures to ozone to be causally related to respiratory effects, a ''likely to be causal'' relationship with metabolic effects and a ''suggestive of, but not sufficient to infer, a causal relationship'' for central nervous system effects, cardiovascular effects, and total mortality. The Ozone ISA reported that long-term exposures (one month or longer) to ozone are ''likely to be causal'' for respiratory effects including respiratory mortality, and a ''suggestive of, but not sufficient to infer, a causal relationship'' for cardiovascular effects, reproductive effects, central nervous system effects, metabolic effects, and total mortality.

For all estimates, we summarized the monetized ozone-related health benefits using discount rates of 3 percent and 7 percent for the 15-year analysis period of these rules discounted back to 2023 rounded to 2 significant figures. For the full set of underlying calculations see the benefits workbook in the RIA, which is available in the docket for this rulemaking. In addition, we include the monetized disbenefits (*i.e.,* negative effects) from additional CO_2 and NO_X emissions, which occur with the HON, P&R I and NSPS IIIa, NNNa, and RRRa, but not P&R II or NSPS VVb since there are no additional CO_2 emissions as a result of these two proposed rules.

[166] U.S. EPA (2020). Integrated Science Assessment for Ozone and Related Photochemical Oxidants. U.S. Environmental Protection Agency. Washington, DC. Office of Research and Development. EPA/600/R–20/012. Available at: *https://www.epa.gov/isa/integrated-science-assessment-isa-ozone-and-related-photochemical-oxidants.*

[167] U.S. EPA. 2021. Technical Support Document (TSD) for the Final Revised Cross-State Air Pollution Rule Update for the 2008 Ozone Season NAAQS Estimating $PM_{2.5}$- and Ozone-Attributable Health Benefits. *https://www.epa.gov/sites/default/files/2021-03/documents/estimating_pm2.5-_and_ozone-attributable_health_benefits_tsd.pdf.*

1. HON

The present value (PV) of the net monetized benefits (monetized health benefits plus monetized climate benefits minus climate disbenefits) for the proposed amendments for the HON are $103.4 million at the 3 percent discount rate to $78.4 million at the 7 percent discount rate and $715.4 million at the 3 percent discount rate to $495.4 million at the 7 percent discount rate. The equivalent annual value (EAV) of the benefits for the proposed amendments for the HON are $8.6 million at the 3 percent discount rate to $7.9 million at the 7 percent discount rate and $60.1 million at the 3 percent discount rate to $53.1 million at the 7 percent discount rate.

2. P&R I

The PV of the net monetized benefits (monetized health benefits plus monetized climate benefits minus monetized climate disbenefits) for the proposed amendments for P&R I are minus $37.8 million at the 3 percent discount rate to minus $38.6 million at the 7 percent discount rate and minus $17.5 million at the 3 percent discount rate to minus $24.5 million at the 7 percent discount rate. The EAV of the benefits for the proposed amendments for P&R I are minus $0.8 million at the 3 percent discount rate to minus $1.6 million at the 7 percent discount rate and minus $1.5 million at the 3 percent discount rate to minus $1.7 million at the 7 percent discount rate.

3. P&R II

The PV of the net monetized benefits (monetized health benefits plus monetized climate benefits minus monetized climate disbenefits) for the proposed amendments for P&R II are zero since there are minimal VOC emission reductions (no more than 1 tpy), and there are no changes in climate-related emissions (CO_2, methane, N_2O).

4. NSPS Subpart VVb

Because the estimated emissions reductions due to this proposed rule are relatively small and because we cannot be confident of the location of new facilities that would be subject to the proposed NSPS subpart VVb, the EPA elected to use the benefit per-ton (BPT) approach. BPT estimates provide the total monetized human health benefits (the sum of premature mortality and premature morbidity) of reducing one ton of the VOC precursor for ozone from a specified source. Specifically, in this analysis, we multiplied the estimates from the SOCMI sector by the corresponding emission reductions. Also, there are no climate benefits or disbenefits associated with this proposed NSPS. Thus, all monetized benefits are human health benefits from VOC reductions.

The PV of the net monetized benefits (monetized health benefits only) for the proposed NSPS subpart VVb are $1.2 million at the 3 percent discount rate to $0.9 million at the 7 percent discount rate and $11 million at the 3 percent discount rate to $7.5 million at the 7 percent discount rate. The EAV of the benefits for the proposed NSPS subpart VVb are $0.10 million at the 3 percent discount rate to $0.09 million at the 7 percent discount rate and $0.93 million at the 3 percent discount rate to $0.82 million at the 7 percent discount rate.

5. NSPS Subpart IIIa, NNNa, and RRRa

Because the estimated emissions reductions due to this rule are relatively small and because we cannot be confident of the location of new facilities that would be subject to the proposed NSPS subparts IIIa, NNNa, and RRRa, the EPA elected to use the BPT approach. BPT estimates provide the total monetized human health benefits (the sum of premature mortality and premature morbidity) of reducing one ton of the VOC precursor for ozone from a specified source. Specifically, in this analysis, we multiplied the estimates from the SOCMI sector by the corresponding emission reductions. We then add these monetized human health benefits to the monetized climate benefits and disbenefits to provide a total estimate of monetized benefits for these proposed NSPS.

The PV of the net monetized benefits (monetized health benefits plus monetized climate benefits minus monetized climate disbenefits) for the proposed NSPS subparts IIIa, NNNa, and RRRa are $11.4 million at the 3 percent discount rate to $10.0 million at the 7 percent discount rate and $47.8 million at the 3 percent discount rate to $34.8 million at the 7 percent discount rate. The EAV of the benefits for the proposed NSPS subparts IIIa, NNNa, and RRRa are $1.0 million at the 3 percent discount rate to $0.9 million at the 7 percent discount rate and $4.1 million at the 3 percent discount rate to $3.6 million at the 7 percent discount rate.

F. What analysis of environmental justice did we conduct?

Executive Order 12898 directs EPA to identify the populations of concern who are most likely to experience unequal burdens from environmental harms, which are specifically minority populations (people of color), low-

income populations, and Indigenous peoples (59 FR 7629, February 16, 1994). Additionally, Executive Order 13985 is intended to advance racial equity and support underserved communities through Federal government actions (86 FR 7009, January 20, 2021). For this action, pursuant to these Executive Orders, the EPA conducted an assessment of the impacts that would result from the proposed rule amendments, if promulgated, on communities with environmental justice (EJ) concerns. However, this assessment did not inform the technical and scientific determinations made to support the proposed rule amendments in this action. The EPA defines EJ as ''the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.'' [168] The EPA further defines fair treatment to mean that ''no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies.'' In recognizing that people of color and low-income populations often bear an unequal burden of environmental harms and risks, the EPA continues to consider ways of protecting them from adverse public health and environmental effects of air pollution. For purposes of analyzing regulatory impacts, the EPA relies upon its June 2016 ''Technical Guidance for Assessing Environmental Justice in Regulatory Analysis,'' [169] which provides recommendations that encourage analysts to conduct the highest quality analysis feasible, recognizing that data limitations, time, resource constraints, and analytical challenges will vary by media and circumstance. The Technical Guidance states that a regulatory action may involve potential EJ concerns if it could: (1) Create new disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples; (2) exacerbate existing disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples; or (3) present opportunities to address existing disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples through this action under development.

1. SOCMI Source Category Demographics

For the SOCMI source category, the EPA examined the potential for the 195 HON facilities (for which the EPA had HAP emissions inventories) to pose concerns to communities living in proximity to facilities, both in the baseline and under the control option considered in this proposal. Specifically, the EPA analyzed how demographics and risk are distributed both pre- and post-control, enabling us to address the core questions that are posed in the EPA's 2016 Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. In conducting this analysis, we considered key variables highlighted in the guidance including ''minority populations (people of color and Hispanic or Latino), low-income populations, and/or indigenous peoples.'' The methodology and detailed results of the demographic analysis are presented in the document titled *Analysis of Demographic Factors for Populations Living Near Hazardous Organic NESHAP (HON) Facilities,* which is available in the docket for this action.

To examine the potential for EJ concerns, the EPA conducted a baseline proximity analysis, baseline risk-based analysis (*i.e.,* before implementation of any controls proposed by this action), and post-control risk-based analysis (*i.e.,* after implementation of the controls proposed by this action). The baseline proximity demographic analysis is an assessment of individual demographic groups in the total population living within 10 km (~6.2 miles) and 50 km (~31 miles) of the facilities. The baseline risk-based demographic analysis is an assessment of risks to individual demographic groups in the population living within 10 km and 50 km of the facilities prior to the implementation of any controls proposed by this action (''baseline''). The post-control risk-based demographic analysis is an assessment of risks to individual demographic groups in the population living within 10 km and 50 km of the facilities after implementation of the controls proposed by this action (''post-control''). In this preamble, we focus on the 10 km radius for the demographic analysis because it encompasses all the facility MIR locations, captures 97 percent of the population with baseline cancer risks greater than or equal to 50-in-1 million from SOCMI source category emissions, and captures 100 percent of the population with such baseline risks greater than 100-in-1 million. The results of the proximity analysis for populations living within 50 km are included in the document titled *Analysis of Demographic Factors for Populations Living Near Hazardous Organic NESHAP (HON) Facilities,* which is available in the docket for this action.

Under the risk-based demographic analysis, the total population, population percentages, and population count for each demographic group for the entire U.S. population is shown in the column titled ''Nationwide Average for Reference'' in Tables 31 through 33 of this preamble of this document. These national data are provided as a frame of reference to compare the results of the baseline proximity analysis, the baseline risk-based analyses, and the post-control risk-based analyses.

The results of the proximity demographic analysis indicate that a total of 9.3 million people live within 10 km of the 195 HON facilities. The percent of the population that is African American is more than double the national average and the percent of the population that is Hispanic or Latino (22 percent) is also higher than the national average (19 percent). The percent of people living below the poverty level and the percent of people over the age of 25 without a high school diploma are higher than the national averages. The results of the baseline proximity analysis indicate that the proportion of other demographic groups living within 10 km of HON facilities is similar to or below the national average. The baseline risk-based demographic analysis, which focuses on populations that have higher cancer risks, suggests that Hispanic/Latinos and African Americans are overrepresented at all cancer risk levels greater than 1-in-1 million. In addition, linguistic isolation increases as the Hispanic/Latino population increases. At all risk levels, in most cases, populations living around facilities where the percentage of the population below the poverty level is 1.5 to 2 times the national average also are above the national average for African American, Native American, Hispanic/Latino, or Other/Multiracial. The post-control risk-based demographic analysis shows that the controls under consideration in this proposal would reduce the number of people who are exposed to cancer risks resulting from SOCMI source category emissions greater than or equal to 1-in-1 million, greater than or equal to 50-in-1 million, and greater than 100-in-1 million significantly, which will

[168] *https://www.epa.gov/environmentaljustice.*

[169] See *https://www.epa.gov/environmentaljustice/technical-guidance-assessing-environmental-justice-regulatory-analysis.*

improve human health of current and future populations that live near these facilities. After the control has been implemented, there will be no people who are exposed to cancer risks greater than 100-in-1 million resulting from SOCMI source category emissions. For more details see the remainder of this section.

a. Baseline Proximity Analysis

The column titled ''Baseline Proximity Analysis for Pop. Living within 10 km of HON Facilities'' in Tables 31 through 33 of this preamble shows the share and count of people for each of the demographic categories for the total population living within 10 km (~6.2 miles) of HON facilities. These are the results of the baseline proximity analysis. These baseline proximity results are repeated in Tables 31 through 33 of this preamble for easy comparison to the risk-based analyses discussed later.

Approximately 9.3 million people live within 10 km of the 195 HON facilities assessed. The results of the proximity demographic analysis indicate that the percent of the population that is African American (25 percent, 2.35M people) is more than double the national average (12 percent). The percent of the population that is Hispanic or Latino (22 percent, 2M people) is higher than the national average (19 percent). The percent of people living below the poverty level (19 percent, 1.75M people) and percent of people over the age of 25 without a high school diploma (16 percent, 1.5M people) are higher than the national averages (13 percent and 12 percent, respectively). The baseline proximity analysis indicates that the proportion of other demographic groups living within 10 km of HON facilities is similar to or below the national average.

b. Baseline Risk-Based Demographics

The baseline risk-based demographic analysis results are shown in the ''baseline'' column of Tables 31 through 33 of this preamble. This analysis focused on the populations living within 10 km (~6.2 miles) of the HON facilities with estimated cancer risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions (Table 31 of this preamble), greater than or equal to 50-in-1 million (Table 32 of this preamble), and greater than 100-in-1 million (Table 33 of this preamble). The risk analysis indicated that emissions from the source category, prior to the controls we are proposing, expose 2.8 million people living near 111 facilities to a cancer risk greater than or equal to 1-in-1 million, 342,000 people living near 21 facilities to a cancer risk greater than or equal to 50-in-1 million, and 87,000 people living near 8 facilities to a cancer risk greater than 100-in-1 million.

In the baseline, there are 2.8 million people living around 111 HON facilities with a cancer risk greater than or equal to 1-in-1 million resulting from SOCMI source category emissions. The 111 HON facilities are located across 17 states, but two-thirds of them are located in Texas and Louisiana (50 in Texas and 33 in Louisiana). Ninety percent of the people with risks greater than or equal to 1-in-1 million are living around 29 of the 111 HON facilities. All but three of these 29 facilities are located in Texas and Louisiana. The percent of the baseline population with estimated cancer risks greater than or equal to 1-in-1 million who are African American (25 percent, 692,000 people) is well above the average percentage of the national population that is African American (12 percent). The African American population living within 10 km of two facilities in Louisiana account for about a quarter of the total African American population with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions.

The percent of the population with cancer risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions prior to the proposed controls that is Hispanic or Latino (34 percent, 958,000 people) is significantly higher than that in the baseline proximity analysis (22 percent, 2 million people) and well above the national average (19 percent). The population around an Illinois facility is over 75 percent Hispanic or Latino, and accounts for a quarter of the Hispanic/Latino population with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions. Another group of 5 facilities in the Houston/Channelview Texas area have local populations that are between 60 and 90 percent Hispanic/Latino, and those communities account for 31 percent of the Hispanic/Latino population with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions. The percent of the population that is linguistically isolated in the baseline with cancer risks greater than or equal to 1-in-1 million (8 percent, 228,000 people) is higher than the percentage in the baseline proximity analysis (5 percent, 510,000 people). The areas with the highest Hispanic/Latino population are some of those with the highest percent linguistic isolation.

Overall, the percent of the baseline population that is Native American with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions (0.2 percent) is well below the national average (0.7 percent). The population with baseline risks resulting from SOCMI source category emissions greater than or equal to 1-in-1 million have a percent Native American population that is more than 2 times the national average. These facilities are located in Texas (3), Louisiana, Montana, Illinois, and Kansas.

The percent of the population below the poverty level with cancer risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions (18 percent, 513K people) is above the national average (13 percent). The percent of the population living below the poverty level within 10 km of 19 facilities is twice the national average. The percent of the population over 25 years old without a high school diploma with cancer risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions (20 percent, 561,000 people) is greater than the national average (13 percent) as well as greater than the overall percent of the population living near HON facilities who are over 25 years old without a high school diploma (16 percent, 1.5 million people).

In the baseline, there are 342,000 people living around 21 HON facilities with a cancer risk greater than or equal to 50-in-1 million resulting from SOCMI source category emissions. The 21 HON facilities are located across 6 states, but two-thirds of them are located in Texas and Louisiana. Ninety-six percent of the people with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions live around 5 HON facilities, which are located in Texas or Louisiana. The percent of the population that is African American with baseline cancer risk greater than or equal to 50-in-1 million resulting from SOCMI source category emissions (19 percent, 65,000 people) is above the national average (12 percent) but is significantly lower than the percent of the population that is African American with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions (25 percent, 692,000 people). The percentage of African Americans is greater than the national average near over half of the facilities (12 facilities) where cancer risk is greater than 50-in-1 million resulting from HON source category emissions. The populations near two facilities in Texas account for about 70 percent of the number of African Americans with risks greater than or equal to 50-in-1

million resulting from SOCMI source category emissions.

The percentage of the population that is Hispanic/Latino with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions (24 percent, 83,000 people) is similar to the percentage of the population that is Hispanic/Latino in the total population living within 10 km of the facilities (22 percent). The percent of population that is Hispanic/Latino with cancer risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions is above the national average at over half of the facilities (13 facilities). The population near three facilities in Texas account for about 80 percent of the number of Latino/Hispanic people with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions.

Overall, the percent of the population that is Native American with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions (0.2 percent) is below the national average (0.7 percent). Populations near four facilities with baseline risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions that have a percent Native American population that is more than 2 times the national average. These facilities are located in Texas (3) and Louisiana.

The percentage of the population with cancer risks resulting from SOCMI source category emissions greater than or equal to 50-in-1 million that are below the poverty level (14 percent), over 25 years old without a high school diploma (15 percent), or are linguistically isolated (5 percent) are similar or slightly above the respective national averages. Of the population with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions, the percentage of the population below the poverty level is twice the national average near five facilities. For all 5 of these facilities, the percentage of the population is also 2 times the national average percentage for at least one race/ethnic demographic category.

In the baseline, there are 88,000 people living around 8 HON facilities with a cancer risk resulting from SOCMI source category emissions greater than 100-in-1 million. These 8 HON facilities are located in Texas and Louisiana. The percent of the population that is African American with baseline cancer risk greater than 100-in-1 million resulting from SOCMI source category emissions (15 percent) is just above the national average (12 percent). The percentage of the African American population with cancer risks greater than 100-in-1 million resulting from SOCMI source category emissions is between 2 to 4 times greater than the national average at three facilities in Texas and one in Louisiana.

The percentage of the population that is Hispanic/Latino with risks greater than 100-in-1 million resulting from SOCMI source category emissions (25 percent, 22,000 people) is above the national average (19 percent) and is similar to the share of the population with cancer risks resulting from SOCMI source category emissions greater than or equal to 50-in-1 million (24 percent, 83,000 people). The share of the Hispanic and Latino population with cancer risks greater than 100-in-1 million resulting from SOCMI source category emissions is between 2 to 3 times greater than the national average at five facilities in Texas and one in Louisiana.

Overall, the percent of the baseline population that is Native American with risks greater than or equal to 100-in-1 million resulting from SOCMI source category emissions (0.2 percent) is well below the National Average (0.7 percent).

The percentage of the population with cancer risks greater than 100-in-1 million resulting from SOCMI source category emissions that are below the poverty level (14 percent), over 25 without a high school diploma (14 percent), or linguistically isolated (5 percent) are similar or slightly above the respective national averages. The percent of the population below the poverty level is 1.5 times the national average at five facilities. The population living around three of these facilities is also 1.5 times the national average for at least one race/ethnic demographic.

In summary, the baseline risk-based demographic analysis, which focuses on populations that are expected to have higher cancer risks resulting from SOCMI source category emissions, suggests that Hispanics or Latinos are disproportionally overrepresented at all cancer risk levels. Specifically, the percent of the population that is Hispanic/Latino is almost twice the national average at a cancer risk equal to or greater than 1-in-1 million and almost 1.5 times the national average at the 50 in a million and 100 in a million risk levels. Similarly, the African American population is disproportionately overrepresented at all cancer risk levels in the baseline risk analysis. The percentage of African American individuals with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions is twice the national average and 1.25 times the national average for the percentage with risks greater than 100-in-1 million. In most cases, when the percentage of the population below the poverty level is greater than 1.5 times the national average the percentage of the populations that is African American, Native American, Hispanic/Latino, or Other/Multiracial residents is above the national average.

c. Post-Control Risk-Based Demographics

This analysis focused on the populations living within 10 km (~6.2 miles) of the facilities with estimated cancer risks greater than or equal to 1-in-1 million (Table 31 of this preamble), greater than or equal to 50-in-1 million (Table 32 of this preamble), and greater than 100-in-1 million (Table 33 of this preamble) resulting from SOCMI source category emissions after implementation of the control options for HON sources investigated under the residual risk analysis as described in section III.B.2.a of this preamble (''post-control''). The results of the post-control risk-based demographics are in the columns titled ''Post-Control'' of Tables 31 through 33 of this preamble. In this analysis, we evaluated how all of the proposed controls and emission reductions for HON processes described in this action affect the distribution of risks. This enables us to characterize the post-control risks and to evaluate whether the proposed action creates or mitigates potential EJ concerns as compared to the baseline.

The risk analysis indicated that the number of people within 10 km of a facility exposed to risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions (Table 31 of this preamble) is reduced from 2.8 million people in the baseline to approximately 2.5 million people after implementation of the proposed HON controls. The populations with a cancer risk greater than or equal to 1-in-1 million resulting from SOCMI source category emissions are located around 111 facilities for both the baseline and post-control.

The post-control population living within 10 km of a facility with estimated cancer risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions (Table 31 of this preamble) has similar demographic percentages to the baseline population with risks greater than or equal to 1-in-1 million. However, the number of individuals with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions is reduced in each demographic.

Specifically, percentage of the population with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions that is African American remains high at 23 percent in the post-control scenario, but the number of African Americans with risks at or above 1-in-1 million is reduced by over 100,000 people from 692,000 in the baseline to 583,000 in the post-control scenario.

Similarly, the percentage of the population with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions that is Hispanic/Latino is almost twice the national average in the post-control scenario (37 percent versus 19 percent), but the number of Hispanic/Latino individuals with risks at or above 1-in-1 million is reduced by about 40,000 people from 958,000 in the baseline to 917,000 in the post-control scenario.

The percent of the population that is Native American with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions (0.2 percent) is below the national average (0.7 percent) in the post-control analysis. Nevertheless, there are seven facilities post-control with risks greater than or equal to 1-in-1 million with a percent Native American population that is more than 2 times the national average. However, the number of Native Americans with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions is reduced from 6,000 in the baseline to 5,000 in the post-control scenario.

The percent of the population below the poverty level is the same in the post-control scenario as in the baseline (18 percent), but the number of individuals with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions that are below the poverty level is reduced by 56,000, from 513,000 to 457,000. The percent of individuals over 25 years old without a high school diploma is the same in the post-control scenario as in the baseline (20 percent), but the number of individuals with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions is reduced by almost 50,000, from 561,000 to 513,000. The percentage of the population that is in linguistic isolation with risks greater than or equal to 1-in-1 million resulting from SOCMI source category emissions is higher in the post-control scenario (9 percent), but the number of individuals is reduced by 14,000 compared to the baseline, from 228,000 to 214,000.

The risk analysis indicated that the number of people living within 10 km of a facility and exposed to risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions (Table 32 of this preamble) is reduced significantly from 342,000 people in the baseline to 29,000 after implementation of the proposed controls. This represents more than a 90 percent reduction in the number of individuals with risk greater than or equal to 50-in-1 million when compared to the baseline. The populations living within 10 km of a facility and with a cancer risk greater than or equal to 50-in-1 million resulting from SOCMI source category emissions are located around 13 facilities in the post-control scenario, 8 fewer facilities than in the baseline. These 13 facilities are located in Alabama, Arkansas, Illinois, Kentucky, Louisiana (5 facilities), and Texas (4 facilities). The communities within 10 km of five of those facilities (in Texas (3 facilities), Alabama, and Illinois) comprise 95 percent of the population with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions.

The number of individuals with risks greater than or equal to 50-in-1 million is reduced significantly for each demographic category in the post-control scenario. Specifically, the percentage of the population with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions that is African American decreased in the post-control scenario and is equal to the national average (12 percent). The number of African Americans with risks at or above 50-in-1 million is reduced from 65,000 in the baseline to 4,000 post-control. The percentage of the population with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions that is Hispanic/Latino increased from 24 percent in the baseline to 29 percent post-control, but the number of Hispanic/Latino individuals with risks at or above 50-in-1 million is reduced from 83,000 in the baseline to 9,000 post-control.

Overall, the percent of the population that is Native American with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions (0.3 percent) is well below the national average (0.7 percent) in the post-control scenario. In addition, the number of Native Americans with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions is reduced from 700 in the baseline to less than 100 post-control.

The percent of the population with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions whose income is below the poverty level (11 percent) is reduced from the baseline (14 percent) post-control. In addition, the number of individuals with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions who are below the poverty level is reduced from 49,000 to 3,000. The number of individuals with risks greater than or equal to 50-in-1 million resulting from SOCMI source category emissions that are over 25 years old without a high school diploma or are linguistically isolated are greatly reduced post-control.

The risk analysis indicated that the number of people living within 10 km of a facility with risks greater than 100-in-1 million resulting from SOCMI source category emissions (Table 33 of this preamble) is reduced from over 87,000 individuals in the baseline to zero individuals after application of the proposed SOCMI controls. Therefore, for the post-control risk-based demographic results, there are no greater than 100-in-1 million demographic results to discuss.

In summary, as shown in the post-control risk-based demographic analysis, the controls under consideration in this proposal would significantly reduce the number of people expected to have cancer risks greater than or equal to 1-in-1 million, greater than or equal to 50-in-1 million, and greater than 100-in-1 million resulting from SOCMI source category emissions. Although the number of individuals with risks greater than or equal to 1-in-1 million is reduced in the post-control scenario (reduced from 2.8 million people to 2.5 million people), populations of African Americans, Hispanics/Latinos, those living below the poverty level, and those over 25 without a high school diploma remain disproportionately represented. Similarly, the number of individuals with risks greater than or equal to 50-in-1 million is reduced significantly in the post-control scenario (reduced from 342,000 to 29,000), but the population of African Americans remains disproportionately represented. Post-control there are no individuals with risks greater than 100-in-1 million resulting from SOCMI source category emissions (reduced from 87,000 people to 0 people).

TABLE 31—SOURCE CATEGORY: COMPARISON OF BASELINE AND POST-CONTROL DEMOGRAPHICS OF POPULATIONS WITH CANCER RISK GREATER THAN OR EQUAL TO 1-IN-1 MILLION RESULTING FROM SOCMI SOURCE CATEGORY EMISSIONS LIVING WITHIN 10 km OF FACILITIES TO THE NATIONAL AVERAGE AND PROXIMITY DEMOGRAPHICS

Demographic group	Nationwide average for reference	Baseline proximity analysis for pop. living within 10 km of HON facilities	Cancer risk ≥1-in-1 million within 10 km of HON facilities	
			Baseline	Post-control
Total Population	328M	9,271,798	2,798,319	2,512,518.
Number of Facilities		195	111	111.
Race and Ethnicity by Percent [number of people]				
White	60 [197M]	47 [4.4M]	37 [1.04M]	37 [919K].
African American	12 [40M]	25 [2.35M]	25 [692K]	23 [583K].
Native American	0.7 [2M]	0.2 [20K]	0.2 [6K]	0.2 [5K].
Hispanic or Latino (includes white and nonwhite)	19 [62M]	22 [2M]	34 [958K]	37 [917K].
Other and Multiracial	8 [27M]	5 [493K]	4 [101K]	4 [89K].
Income by Percent [Number of People]				
Below Poverty Level	13 [44M]	19 [1.75M]	18 [513K]	18 [457K].
Above Poverty Level	87 [284M]	81 [7.5M]	82 [2.3M]	82 [2.1M].
Education by Percent [Number of People]				
Over 25 and without a High School Diploma	12 [40M]	16 [1.5M]	20 [561K]	20 [513K].
Over 25 and with a High School Diploma	88 [288M]	84 [7.8M]	80 [2.2M]	80 [2M].
Linguistically Isolated by Percent [Number of People]				
Linguistically Isolated	5 [18M]	5 [510K]	8 [228K]	9 [214K].

Notes:
- There are 207 HON facilities; however, only 195 of these facilities are included in the proximity analysis based on available data, which corresponds to 222 EIS facility IDs.
- Nationwide population and demographic percentages are based on Census' 2015–2019 American Community Survey (ACS) 5-year block group averages. Total population count within 10 km is based on 2010 Decennial Census block population.
- To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category. A person who identifies as Hispanic or Latino is counted as Hispanic or Latino, regardless of race.
- The number of facilities represents facilities with a cancer MIR above level indicated. When the MIR was located at a user assigned receptor at an individual residence and not at a census block centroid, we were unable to estimate population and demographics for that facility.
- The sum of individual populations with a demographic category may not add up to total due to rounding.

TABLE 32—SOURCE CATEGORY: COMPARISON OF BASELINE AND POST-CONTROL DEMOGRAPHICS OF POPULATIONS WITH CANCER RISK GREATER THAN OR EQUAL TO 50-IN-1 MILLION RESULTING FROM SOCMI SOURCE CATEGORY EMISSIONS LIVING WITHIN 10 km OF FACILITIES TO THE NATIONAL AVERAGE AND PROXIMITY DEMOGRAPHICS

Demographic group	Nationwide average for reference	Baseline proximity analysis for pop. living within 10 km of HON facilities	Cancer risk ≥1-in-1 million within 10 km of HON facilities	
			Baseline	Post-control
Total Population	328M	9,271,798	341,638	29,355.
Number of Facilities		195	21	13.
Race and Ethnicity by Percent [number of people]				
White	60 [197M]	47 [4.4M]	52 [177K]	54 [16K].
African American	12 [40M]	25 [2.35M]	19 [65K]	12 [4K].
Native American	0.7 [2M]	0.2 [20K]	0.2 [660]	0.3 [81].
Hispanic or Latino (includes white and nonwhite)	19 [62M]	22 [2M]	24 [83K]	29 [9K] .
Other and Multiracial	8 [27M]	5 [493K]	5 [17K]	4 [1.2K].
Income by Percent [Number of People]				
Below Poverty Level	13 [44M]	19 [1.75M]	14 [49K]	11 [3.3K].
Above Poverty Level	87 [284M]	81 [7.5M]	86 [293K]	89 [26K].
Education by Percent [Number of People]				
Over 25 and without a High School Diploma	12 [40M]	16 [1.5M]	15 [50K]	12 [4K].
Over 25 and with a High School Diploma	88 [288M]	84 [7.8M]	85 [291K]	88 [26K].
Linguistically Isolated by Percent [Number of People]				
Linguistically Isolated	5 [18M]	5 [510K]	5 [15K]	3 [766].

Notes:
- There are 207 HON facilities; however, only 195 of these facilities are included in the proximity analysis based on available data, which corresponds to 222 EIS facility IDs.
- Nationwide population and demographic percentages are based on Census' 2015–2019 ACS 5-year block group averages. Total population count within 10 km is based on 2010 Decennial Census block population.
- To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category. A person who identifies as Hispanic or Latino is counted as Hispanic or Latino, regardless of race.
- The number of facilities represents facilities with a cancer MIR above level indicated. When the MIR was located at a user assigned receptor at an individual residence and not at a census block centroid, we were unable to estimate population and demographics for that facility.

• The sum of individual populations with a demographic category may not add up to total due to rounding.

TABLE 33—SOURCE CATEGORY: COMPARISON OF BASELINE AND POST-CONTROL DEMOGRAPHICS OF POPULATIONS WITH CANCER RISK GREATER THAN 100-IN-1 MILLION RESULTING FROM SOCMI SOURCE CATEGORY EMISSIONS LIVING WITHIN 10 km OF FACILITIES TO THE NATIONAL AVERAGE AND PROXIMITY DEMOGRAPHICS

Demographic group	Nationwide average for reference	Baseline proximity analysis for pop. living within 10 km of HON facilities	Cancer risk ≥1-in-1 million within 10 km of HON facilities	
			Baseline	Post-control
Total Population	328M	9,271,798	87,464	0
Number of Facilities		195	8	0
Race and Ethnicity by Percent [number of people]				
White	60 [197M]	47 [4.4M]	54 [47K].	
African American	12 [40M]	25 [2.35M]	15 [13K].	
Native American	0.7 [2M]	0.2 [20K]	0.2 [202].	
Hispanic or Latino (includes white and nonwhite)	19 [62M]	22 [2M]	25 [22K].	
Other and Multiracial	8 [27M]	5 [493K]	6 [5.5K].	
Income by Percent [Number of People]				
Below Poverty Level	13 [44M]	19 [1.75M]	14 [12K].	
Above Poverty Level	87 [284M]	81 [7.5M]	86 [75K].	
Education by Percent [Number of People]				
Over 25 and without a High School Diploma	12 [40M]	16 [1.5M]	14 [12K].	
Over 25 and with a High School Diploma	88 [288M]	84 [7.8M]	86 [75K].	
Linguistically Isolated by Percent [Number of People]				
Linguistically Isolated	5 [18M]	5 [510K]	5 [4K].	

Notes:
• There are 207 HON facilities; however, only 195 of these facilities are included in the proximity analysis based on available data, which corresponds to 222 EIS facility IDs.
• Nationwide population and demographic percentages are based on Census' 2015–2019 ACS 5-year block group averages. Total population count within 10 km is based on 2010 Decennial Census block population.
• To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category. A person who identifies as Hispanic or Latino is counted as Hispanic or Latino, regardless of race.
• The number of facilities represents facilities with a cancer MIR above level indicated. When the MIR was located at a user assigned receptor at an individual residence and not at a census block centroid, we were unable to estimate population and demographics for that facility.
• The sum of individual populations with a demographic category may not add up to total due to rounding.

2. HON Whole-Facility Demographics

As described in section III.A.5 of this preamble, we assessed the facility-wide (or ''whole-facility'') risks for 195 HON facilities in order to compare the SOCMI source category risk to the whole facility risks, accounting for HAP emissions from the entire major source and not just those resulting from SOCMI source category emissions at the major source as discussed in the previous section. The whole facility risk assessment includes all sources of HAP emissions at each facility as reported in the NEI (described in section III.C of this preamble). Since HON facilities tend to include HAP emissions sources from many source categories, the EPA conducted a whole-facility demographic analysis focused on post-control risks. This whole-facility demographic analysis characterizes the remaining risks communities face after implementation of the controls proposed in this for both the SOCMI source category and the Neoprene Production source category.

The whole-facility demographic analysis is an assessment of individual demographic groups in the total population living within 10 km (~6.2 miles) and 50 km (~31 miles) of the facilities. In this preamble, we focus on the 10 km radius for the demographic analysis because, based on SOCMI category emissions, this distance includes all the facility MIR locations, includes 97 percent of the population with cancer risks greater than or equal to 50-in-1 million, and includes 100 percent of the population with risks greater than 100-in-1 million. The results of the whole-facility demographic analysis for populations living within 50 km are included in the document titled *Analysis of Demographic Factors for Populations Living Near Hazardous Organic NESHAP (HON) Facilities,* which is available in the docket for this action.

The whole-facility demographic analysis post-control results are shown in Table 34 of this preamble. This analysis focused on the populations living within 10 km of the HON facilities with estimated whole-facility post-control cancer risks greater than or equal to 1-in-1 million, greater than or equal to 50-in-1 million, and greater than 100-in-1 million. The risk analysis indicated that all emissions from the HON facilities, after the proposed reductions, expose a total of about 3 million people living around 140 facilities to a cancer risk greater than or equal to 1-in-1 million, 78,000 people living around 24 facilities to a cancer risk greater than or equal to 50-in-1 million, and 2,500 people living around 4 facilities to a cancer risk greater than 100-in-1 million.

When the HON whole-facility populations are compared to the SOCMI source category populations in the post-control scenarios, we see 500,000 additional people with risks greater than or equal to 1-in-1 million, 29,000 additional people with risks greater than or equal to 50-in-1 million, and 2,500 additional people with risks greater than 100-in-1 million. With the exception of a smaller percentage of affected Hispanic/Latino individuals (37 percent for category versus 33 percent whole-facility), the demographic distribution of the whole-facility population with risks greater than or equal to 1-in-million is similar to the category population with risks greater than or equal to 1-in-1 million in the post-

control scenario. The population with risks greater than or equal to 50-in-1 million in the whole-facility analysis has a lower percent of Hispanic/Latino individuals than the category population with risks greater than or equal to 50-in-1 million (25 percent versus 29 percent). The percentage of the population with risks greater than or equal to 50-in-1 million that is below the poverty level or over 25 years old without a high school diploma is higher for the whole-facility post-control population than for the category post-control population. The SOCMI category emissions analysis indicated that there are no people with post-control risks greater than 100-in-1 million. Based on results from the whole-facility emissions analysis, there are 2,500 people with post-control risks greater than 100-in-million. The increased cancer risk for most of these 2,500 people is driven by EtO emissions from non-HON processes and whole-facility emissions from the neoprene production facility (a combination of the remaining SOCMI category risk and neoprene production category risk at this facility). The percent of the population in the whole facility analysis with post-control risks greater than 100-in-1 million that is African American (29 percent, 700 individuals) is well above the national average (12 percent). In addition, the percent of the population in the whole facility analysis with a post control risk greater than 100-in-1 million that is below the poverty level (21 percent,500 individuals), and the percent of the population that is over 25 years old without a high school diploma (25 percent, 600 individuals) are above the national average (13 percent and 12 percent, respectively).

TABLE 34—WHOLE FACILITY: WHOLE-FACILITY POST-CONTROL DEMOGRAPHICS FOR HON FACILITIES BY RISK LEVEL FOR POPULATIONS LIVING WITHIN 10 km OF FACILITIES

Demographic group	Nationwide	Post-control cancer risk for populations within 10 km		
		≥1-in-1 million	≥50-in-1 million	>100-in-1 million
Total Population	328M	3,119,955	78,144	2,498.
Number of Facilities		140	24	4.
Race and Ethnicity by Percent [Number of People]				
White	60 [197M]	39 [1.2M]	57 [45K]	53 [1.3K].
African American	12 [40M]	24 [760K]	14 [11K]	29 [727].
Native American	0.7 [2M]	0.2 [6.5K]	0.2 [174]	0.0 [1].
Hispanic or Latino (includes white and nonwhite)	19 [62M]	33 [1M]	25 [20K]	17 [434].
Other and Multiracial	8 [27M]	4 [113K]	4 [3K]	1 [22] .
Income by Percent [Number of People]				
Below Poverty Level	13 [44M]	18 [576K]	14 [11K]	21 [531].
Above Poverty Level	87 [284M]	82 [2.5M]	86 [67K]	79 [2K] .
Education by Percent [Number of People]				
Over 25 and without a High School Diploma	12 [40M]	20 [614K]	16 [12.5K]	25 [619].
Over 25 and with a High School Diploma	88 [288M]	80 [2.5M]	84 [66K]	75 [2K].
Linguistically Isolated by Percent [Number of People]				
Linguistically Isolated	5 [18M]	8 [236K]	3 [3K]	2 [43].

Notes:
- Nationwide population and demographic percentages are based on Census' 2015–2019 ACS 5-year block group averages. Total population count within 10 km is based on 2010 Decennial Census block population.
- To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category. A person who identifies as Hispanic or Latino is counted as Hispanic or Latino, regardless of race.
- The number of facilities represents facilities with a cancer MIR above level indicated. When the MIR was located at a user assigned receptor at an individual residence and not at a census block centroid, we were unable to estimate population and demographics for that facility.
- The sum of individual populations with a demographic category may not add up to total due to rounding.

3. Neoprene Production Source Category Demographics

For the Neoprene Production source category, the EPA examined the potential for the one neoprene production facility to pose EJ concerns to communities both in the baseline and under the control option considered in this proposal. Specifically, the EPA analyzed how demographics and risk are distributed both pre- and post-control, enabling us to address the core questions that are posed in the EPA's 2016 Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. In conducting this analysis, we considered key variables highlighted in the guidance including minority populations (people of color and Hispanic or Latino), low-income populations, and/or indigenous peoples. The methodology and detailed results of the demographic analysis are presented in a technical report, *Analysis of Demographic Factors for Populations Living Near Neoprene Production Facilities,* available in the docket for this action.

To examine the potential for EJ concerns in the pre-control baseline, the EPA conducted a baseline proximity analysis, baseline risk-based analysis, and post-control risk-based analysis. These analyses (total baseline, baseline risk, and post-control risks) assessed the demographic groups in the populations living within 5 km (~3.1 miles) and 50 km (~31 miles) of the facility. For the Neoprene Production source category, we focus on the 5 km radius for the demographic analysis because it encompasses the facility MIR location and captures 100 percent of the population with cancer risks resulting from Neoprene Production source category emissions greater than or equal to 50-in-1 million and greater than 100-in-1 million. The results of the proximity analysis for populations living within 50 km are included in the technical report included in the docket for this proposed rule. Nationwide average demographics data are provided as a frame of reference.

The results of the proximity demographic analysis indicate that a total of about 29,000 people live within 5 km of the Neoprene facility. The percent of the population that is African

American is more than four times the national average. The percent of people living below the poverty level is almost double the national average.

The baseline risk-based demographic analysis indicates that African Americans are disproportionally overrepresented at all cancer risk levels resulting from Neoprene Production source category emissions (Percent African Americans ranges from 5 to 7 times the national average percent). The percent of the population that is below the poverty level is twice the national average within 5 km of the Neoprene facility.

The post-control risk-based demographic analysis indicates that the controls under consideration for Neoprene Production source category in this proposal do not reduce the number of people with cancer risks resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million at the 5 km distance. However, the controls do significantly reduce the number of people with risks resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million within 50 km. The demographics of this population in the post-control risk-based analysis are similar to the baseline population. The populations with risks resulting from Neoprene Production source category emissions greater than or equal to 50-in-1 million and greater than 100-in-1 million are reduced at all distances by more than 90 percent by the controls for the Neoprene Production source category under consideration. In the post-control scenario, there are no people with risks resulting from Neoprene Production source category emissions greater than 100-in-1 million.

a. Baseline Proximity Analysis

The column titled ''Total Population Living within 5 km of Neoprene Facility'' in Tables 35 through 37 of this preamble shows the demographics for the total population living within 5 km (~3.1 miles) of the neoprene facility. A total of about 29,000 people live within 5 km of the one neoprene facility. The results of the proximity demographic analysis indicate that the percent of the population that is African American (56 percent, 16,000 people) is more than four times the national average (12 percent). The percent of people living below the poverty level (23 percent, 6,500 people) and those over the age of 25 without a high school diploma (16 percent, 4,500 people) are higher than the national averages (13 percent and 12 percent, respectively). The baseline proximity analysis indicates that the proportion of other demographic groups living within 5 km of the neoprene facility is similar to or below the national average.

b. Baseline Risk-Based Demographics

The baseline risk-based demographic analysis results are shown in the ''baseline'' column of Tables 35 through 37 of this preamble. This analysis focused on the populations living within 5 km (~3.1 miles) of the neoprene facility with estimated cancer risks resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million (Table 35 of this preamble), greater than or equal to 50-in-1 million (Table 36 of this preamble), and greater than 100-in-1 million Table 37 of this preamble) in the absence of the reductions we are proposing.

In the baseline, emissions from the Neoprene Production source category expose all individuals within 5 km of the facility (29,000 people) to a cancer risk greater than or equal to 1-in-1 million. Since the entire population within 5 km are exposed to risks greater than or equal to 1-in-1 million, the demographics of the baseline at-risk population are the same as the total baseline population. Specifically, a high percentage of the population is African American (56 percent versus 12 percent nationally), below the poverty line (23 percent versus 13 percent nationally), and over the age of 25 without a high school diploma (16 percent versus 12 percent nationally). The percentages of other demographic groups within the population with risks resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million living within 5 km of the neoprene facility are similar to or below the national average. Within 50 km (~31 miles) of the facility, about 70 percent of the population (687,000 people of the 1 million total within 50 km) is exposed to a cancer risk resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million. Additional details on the 50 km results can be found in the demographics report located in the docket.

The risk-based demographics analysis indicates that emissions from the source category, prior to the reductions we are proposing, expose about 13,000 individuals within 5 km of the facility to a cancer risk greater than or equal to 50-in-1 million (about half of the total population within 5 km). As seen at the lower risk level of greater than or equal to 1-in-1 million, the population with risks greater than or equal to 50-in-1 million has a very high percentage of African Americans; that percent is almost 6 times the national average (68 percent versus 12 percent nationally). The percent of the population that is below the poverty line is more than double the national average (27 percent versus 13 percent nationally), and the percent of the population that is over the age of 25 without a high school diploma is 1.5 times the national average (18 percent versus 12 percent nationally). The percentages of other demographic groups within the population with risks resulting from Neoprene Production source category emissions greater than or equal to 50-in-1 million living within 5 km of the Neoprene facility are similar to or below the national average.

In the baseline, there are 2,000 people living within 5 km of the Neoprene facility with a cancer risk resulting from Neoprene Production source category emissions greater than 100-in-1 million. The percent of the population that is African American with baseline cancer risk greater than 100-in-1 million (85 percent, 1,753 people) is over 7 times the national average (12 percent). The percentage of the population with cancer risks greater than 100-in-1 million that is below the poverty level (31 percent, 600 people) is about 2.5 times the national average (13 percent). The percent of the population that is over 25 without a high school diploma (14 percent, 300 people) is just above the national average (12 percent).

In summary, the baseline risk-based demographic analysis, which focuses on those specific locations that are expected to have higher cancer risks in the baseline, indicates that African Americans are disproportionally overrepresented at all cancer risk levels. Specifically, at all risk levels, the percent of the population that is African American is 5 to 7 times the national average and the percent of the population that is below the poverty level is twice the national average within 5 km of the neoprene production facility.

c. Post-Control Risk-Based Demographics

This analysis focused on the populations living within 5 km (~3.1 miles) of the facility with estimated cancer risks resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million (Table 35 of this preamble), greater than or equal to 50-in-1 million (Table 36 of this preamble), and greater than 100-in-1 million (Table 37 of this preamble) after implementation of the Neoprene Production source category control options as described in section III.B.2.b of this preamble. The results of the post-control risk-based demographics

analysis are in the columns titled ''Post-Control'' of Tables 35 through 37 of this preamble. In this analysis, we evaluated how all of the proposed controls and emission reductions for the Neoprene Production source category described in this action affect the distribution of risks. This enables us to characterize the post-control risks and to evaluate whether the proposed action creates or mitigates potential EJ concerns as compared to the baseline.

The risk analysis indicated that the number of people exposed to risks resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million within 5 km of the facility (Table 35 of this preamble) is unchanged from the baseline (29,000 people). Therefore, the population living within 5 km of the facility with estimated cancer risks greater than or equal to 1-in-1 million in the post-control scenario (Table 35 of this preamble) has the same demographic percentages as the total population in the proximity analysis and the population with risks greater than or equal to 1-in-1 million in the baseline risk analysis. Specifically, the percentage of the population with risks resulting from Neoprene Production source category emissions in the post-control analysis that is greater than or equal to 1-in-1 million and is African American (56 percent) is almost 5 times the national average (12 percent), and the percent below the poverty level (23 percent) is almost 2 times the national average (13 percent). However, after control, the number of people exposed to risk greater than or equal to 1-in-1 million within 50 km (~31 miles) of the facility is significantly reduced from 687,000 to 48,000.

The risk analysis indicated that the number of people living within 5 km of the facility and exposed to risks resulting from Neoprene Production source category emissions greater than or equal to 50-in-1 million (Table 36 of this preamble) is reduced significantly from about 13,000 people in the baseline to 700 people after implementation of the proposed controls. This represents more than a 90 percent reduction in the size of the populations at risk when compared to the baseline population. The post-control population living within 5 km of the facility with estimated cancer risks greater than or equal to 50-in-1 million for post-control (Table 36 of this preamble) is almost entirely African American (99 percent). The number of African Americans with risks greater than or equal to 50-in-1 million is reduced from about 9,000 in the baseline to 700 people post-control. Similarly, the post-control population with risks greater than or equal to 50-in-1 million has a high percent of people below poverty (33 percent). The number of people with risks greater than or equal 50-in-1 million that are below the poverty level is reduced from 3,400 in the baseline to 200 people post-control.

The risk analysis indicated that the number of people living within 5 km of the facility and exposed to risks resulting from Neoprene Production source category emissions greater than 100-in-1 million (Table 37 of this preamble) is reduced from over 2,000 people in the baseline to zero people after application of the proposed controls. Therefore, for the post-control risk-based demographics, no people with risks resulting from Neoprene Production source category emissions above 100-in-1 million.

In summary, as shown in the post-control risk-based demographic analysis, the controls under consideration in this proposal do not reduce the number of people expected to have cancer risks resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million at the 5 km distance. The controls do significantly reduce the number of people with risks resulting from Neoprene Production source category emissions greater than or equal to 1-in-1 million within 50 km. In the post-control population with risks greater than or equal to 1-in-1 million, African Americans and those living below the poverty level remain disproportionately represented. For the populations with risks greater than or equal to 50-in-1 million and greater than 100-in-1 million, the controls under consideration reduce the at-risk populations by more than 90 percent at all distances. In the post-control population with risks greater than or equal to 50-in-1 million, African Americans and those living below the poverty level remain disproportionately represented. Post-control, there are no people with risks resulting from Neoprene Production source category emissions greater than 100-in-1 million.

We also evaluated the whole-facility post-control risks at the neoprene production facility. The whole-facility post-control risks include all known sources of HAP emissions at the neoprene production facility, not just those from neoprene production processes. This whole-facility demographic analysis provides a more complete picture of the remaining risks at the facility after implementation of the controls proposed in this action and the populations exposed to emissions resulting from them. The post-control whole-facility emissions at the neoprene production facility are a combination of the remaining SOCMI category risk and Neoprene Production category risk at this facility. Based on whole-facility emissions, there are a total of about 47,000 people living within 10 km (~6.2 miles) with risks greater than or equal to 1-in-1 million after controls, which is unchanged from the baseline. There are 86,000 people within 50 km of the neoprene facility with post-control whole-facility risks greater than or equal to 1-in-1 million, which is a 90 percent reduction of the 893,000 people in the baseline. The population within 10 km with post-control whole-facility risks of greater than or equal to 1-in-1 million is 55 percent African American, and 19 percent are below the poverty level. Based on whole-facility emissions there are a total of about 2,000 people remaining after controls living within 10 km and 50 km of the neoprene facility with risks greater than or equal to 50-in-1 million (a reduction of 83 percent from the baseline of 16,000 people). This population is 83 percent African American and 32 percent below the poverty level. Based on whole-facility emissions, about 300 people with risks greater than 100-in-1 million remain after controls are implemented living within 10 km and 50 km of the neoprene production facility (a reduction of 86 percent from the baseline of 2,300 people). This population is 99 percent African American, and 33 percent are below the poverty level. We note that as further discussed in section III.C.7 of this preamble, the EPA is proposing a fenceline action level of 0.3 $\mu g/m^3$ for chloroprene for the whole facility. As such, we believe once fenceline monitoring is fully implemented, that whole facility post-control risks will be reduced to 100-in-1 million and that 0 people (rather than 300 people as shown in this analysis) will remain with risks greater than 100-in-1 million.

TABLE 35—SOURCE CATEGORY: COMPARISON OF BASELINE AND POST-CONTROL DEMOGRAPHICS OF POPULATIONS WITH CANCER RISK GREATER THAN OR EQUAL TO 1-IN-1 MILLION LIVING WITHIN 5 km OF THE NEOPRENE PRODUCTION FACILITY TO THE NATIONAL AVERAGE AND THE PROXIMITY DEMOGRAPHICS

Demographic group	Nationwide	Total population living within 5 km of neoprene facility	Cancer risk ≥1-in-1 million within 5 km of neoprene facility	
			Baseline	Post-control
Total population	328M	28,571	28,571	28,571.
Number of Facilities	.....	1	1	1.
Race and Ethnicity by Percent [Number of People]				
White	60 [197M]	35 [10K]	35 [10K]	35 [10K].
African American	12 [40M]	56 [16K]	56 [16K]	56 [16K].
Native American	0.7 [2M]	0.0	0.0	0.0.
Hispanic or Latino (includes white and nonwhite)	19 [62M]	5 [1.5K]	5 [1.5K]	5 [1.5K].
Other and Multiracial	8 [27M]	3 [900]	3 [900]	3 [900].
Income by Percent [Number of People]				
Below Poverty Level	13 [44M]	23 [6.5K]	23 [6.5K]	23 [6.5K].
Above Poverty Level	87 [284M]	77 [22K]	77 [22K]	77 [22K].
Education by Percent [Number of People]				
Over 25 and without a High School Diploma	12 [40M]	16 [4.6K]	16 [4.6K]	16 [4.6K].
Over 25 and with a High School Diploma	88 [288M]	84 [24K]	84 [24K]	84 [24K].
Linguistically Isolated by Percent [Number of People]				
Linguistically Isolated	5 [18M]	1 [300]	1 [300]	1 [300].

Notes:
- Nationwide population and demographic percentages are based on Census' 2015–2019 ACS 5-year block group averages. Total population count within 5 km is based on 2010 Decennial Census block population.
- To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category. A person who identifies as Hispanic or Latino is counted as Hispanic or Latino, regardless of race.
- The number of facilities represents facilities with a cancer MIR above level indicated. When the MIR was located at a user assigned receptor at an individual residence and not at a census block centroid, we were unable to estimate population and demographics for that facility.
- The sum of individual populations with a demographic category may not add up to total due to rounding.

TABLE 36—SOURCE CATEGORY: COMPARISON OF BASELINE AND POST-CONTROL DEMOGRAPHICS OF POPULATIONS WITH CANCER RISK GREATER THAN OR EQUAL TO 50-IN-1 MILLION LIVING WITHIN 5 km OF THE NEOPRENE FACILITY TO THE NATIONAL AVERAGE AND THE PROXIMITY DEMOGRAPHICS

Demographic group	Nationwide	Total population living within 5 km of the neoprene facility	Cancer risk ≥50-in-1 million within 5 km of the neoprene facility	
			Baseline	Post-control
Total Population	328M	28,571	12,801	727.
Number of Facilities	.....	1	1	1.
Race and Ethnicity by Percent [Number of People]				
White	60 [197M]	35 [10K]	26 [3.3K]	1 [<100].
African American	12 [40M]	56 [16K]	68 [8.6K]	99 [700].
Native American	0.7 [2M]	0.0	0.0	0.0 .
Hispanic or Latino (includes white and nonwhite)	19 [62M]	5 [1.5K]	4 [500]	0 .
Other and Multiracial	8 [27M]	3 [900]	2 [200]	0 .
Income by Percent [Number of People]				
Below Poverty Level	13 [44M]	23 [6.5K]	27 [3.4K]	33 [200].
Above Poverty Level	87 [284M]	77 [22K]	73 [9.3K]	67 [500].
Education by Percent [Number of People]				
Over 25 and without a High School Diploma	12 [40M]	16 [4.6K]	18 [2.3K]	12 [<100].
Over 25 and with a High School Diploma	88 [288M]	84 [24K]	82 [10.5K]	88 [600].

TABLE 36—SOURCE CATEGORY: COMPARISON OF BASELINE AND POST-CONTROL DEMOGRAPHICS OF POPULATIONS WITH CANCER RISK GREATER THAN OR EQUAL TO 50-IN-1 MILLION LIVING WITHIN 5 km OF THE NEOPRENE FACILITY TO THE NATIONAL AVERAGE AND THE PROXIMITY DEMOGRAPHICS—Continued

Demographic group	Nationwide	Total population living within 5 km of the neoprene facility	Cancer risk ≥50-in-1 million within 5 km of the neoprene facility	
			Baseline	Post-control
Linguistically Isolated by Percent [Number of People]				
Linguistically Isolated	5 [18M]	1 [300]	1 [<100]	0 .

Notes:
• Nationwide population and demographic percentages are based on Census' 2015–2019 ACS 5-year block group averages. Total population count within 5 km is based on 2010 Decennial Census block population.
• To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category. A person who identifies as Hispanic or Latino is counted as Hispanic or Latino, regardless of race.
• The number of facilities represents facilities with a cancer MIR above level indicated. When the MIR was located at a user assigned receptor at an individual residence and not at a census block centroid, we were unable to estimate population and demographics for that facility.
• The sum of individual populations with a demographic category may not add up to total due to rounding.

TABLE 37—SOURCE CATEGORY: COMPARISON OF BASELINE AND POST-CONTROL DEMOGRAPHICS OF POPULATIONS WITH CANCER RISK GREATER THAN 100-IN-1 MILLION LIVING WITHIN 5 km OF THE NEOPRENE FACILITY TO THE NATIONAL AVERAGE AND THE PROXIMITY DEMOGRAPHICS

Demographic group	Nationwide	Total population living within 5 km of the neoprene facility	Cancer risk >100-in-1 million within 5 km of the neoprene facility	
			Baseline	Post-control
Total population	328M	28,571	2,052	0
Number of Facilities	.....	1	1	0
Race and Ethnicity by Percent [Number of People]				
White	60 [197M]	35 [10K]	11 [200]	0
African American	12 [40M]	56 [16K]	85 [1.8K]	0
Native American	0.7 [2M]	0.0	0.0	0.0
Hispanic or Latino (includes white and nonwhite)	19 [62M]	5 [1.5K]	3 [<100]	0
Other and Multiracial	8 [27M]	3 [900]	0	0
Income by Percent [Number of People]				
Below Poverty Level	13 [44M]	23 [6.5K]	31 [600]	0
Above Poverty Level	87 [284M]	77 [22K]	69 [1.4K]	0
Education by Percent [Number of People]				
Over 25 and without a High School Diploma	12 [40M]	16 [4.6K]	14 [300]	0
Over 25 and with a High School Diploma	88 [288M]	84 [24K]	86 [1.8K]	0
Linguistically Isolated by Percent [Number of People]				
Linguistically Isolated	5 [18M]	1 [300]	0	0

Notes:
• Nationwide population and demographic percentages are based on Census' 2015–2019 ACS 5-year block group averages. Total population count within 5 km is based on 2010 Decennial Census block population.
• To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category. A person who identifies as Hispanic or Latino is counted as Hispanic or Latino, regardless of race.
• The number of facilities represents facilities with a cancer MIR above level indicated. When the MIR was located at a user assigned receptor at an individual residence and not at a census block centroid, we were unable to estimate population and demographics for that facility.
• The sum of individual populations with a demographic category may not add up to total due to rounding.

4. P&R I and P&R II Source Categories Demographics

As stated above, for P&R I and P&R II, other than the Neoprene Production source category within P&R I, we have not conducted a risk assessment for this proposal. Therefore, to examine the potential for any EJ concerns that might be associated with P&R I (excluding neoprene) or P&R II facilities, we performed a proximity demographic analysis, which is an assessment of individual demographic groups of the populations living within 5 km (~3.1 miles) and 50 km (~31 miles) of the facilities. The EPA then compared the data from this analysis to the national average for each of the demographic groups. In this preamble, we focus on the proximity results for the populations living within 10 km (~6.2 miles) of the

facilities. The results of the proximity analysis for populations living within 50 km are included in the document titled *Analysis of Demographic Factors for Populations Living Near Hazardous Organic NESHAP (HON) Facilities,* which is available in the docket for this action.

The results show that for populations within 5 km of the 18 P&R I facilities (5 in Louisiana, 6 in Texas, 2 in Kentucky, one each in Georgia, Minnesota, Mississippi, Ohio, Michigan), the following demographic groups were above the national average: African American (37 percent versus 12 percent nationally), Hispanic/Latino (24 percent versus 19 percent nationally), people living below the poverty level (24 percent versus 13 percent nationally), people over the age of 25 without a high school diploma (21 percent versus 12 percent nationally), and linguistically isolated households (7 percent versus 5 percent nationally).

The results show that for populations within 5 km of the 5 P&R II facilities (2 in Texas, one each in Alabama, Arkansas, Oregon), the following demographic groups were above the national average: Native American (0.9 percent versus 0.7 percent nationally), Hispanic/Latino (27 percent versus 19 percent nationally), and people over the age of 25 without a high school diploma (13 percent versus 12 percent nationally).

A summary of the proximity demographic assessment performed is included as Table 38 of this preamble. The methodology and the results of the demographic analysis are presented in the document titled *Analysis of Demographic Factors for Populations Living Near Polymers and Resins I and Polymer and Resins II Facilities,* which is available in the docket for this action.

TABLE 38—PROXIMITY DEMOGRAPHIC ASSESSMENT RESULTS FOR POLYMERS AND RESINS I AND II FACILITIES

Demographic group	Nationwide average for reference	P&R I: population within 5 km of 18 facilities	P&R II: population within 5 km of 5 facilities
Total Population	328M	627,823	124,050
Race and Ethnicity by Percent [Number of People]			
White	60 [197M]	35 [218K]	62 [76K].
African American	12 [40M]	37 [234K]	5 [7K].
Native American	0.7 [2M]	0.2 [1K]	0.9 [1K].
Hispanic or Latino (includes white and nonwhite)	19 [62M]	24 [150K]	27 [34K].
Other and Multiracial	8 [27M]	4 [24K]	5 [6K].
Income by Percent [Number of People]			
Below Poverty Level	13 [44M]	24 [150K]	13 [16K].
Above Poverty Level	87 [284M]	76 [478K]	87 [108K].
Education by Percent [Number of People]			
Over 25 and without a High School Diploma	12 [40M]	21 [130K]	13 [16K].
Over 25 and with a High School Diploma	88 [288M]	79 [498K]	87 [108K].
Linguistically Isolated by Percent [Number of People]			
Linguistically Isolated	5 [18M]	7 [43K]	2 [3K].

Notes:
- Nationwide population and demographic percentages are based on Census' 2015–2019 ACS 5-year block group averages. Total population count within 10 km is based on 2010 Decennial Census block population.
- To avoid double counting, the "Hispanic or Latino" category is treated as a distinct demographic category. A person who identifies as Hispanic or Latino is counted as Hispanic or Latino, regardless of race.
- The sum of individual populations with a demographic category may not add up to total due to rounding.

5. Proximity Demographics Analysis for NSPS Subpart VVb

Consistent with the EPA's commitment to integrating EJ in the Agency's actions, and following the directives set forth in multiple Executive Orders as well as CAA section 111(b)(1)(B), the Agency has carefully considered the impacts of the proposed NSPS subpart VVb on communities with EJ concerns. The proposed NSPS subpart VVb covers VOC emissions from certain equipment leaks in the SOCMI from sources that are constructed, reconstructed, or modified after April 25, 2023.

Executive Order 12898 directs the EPA to identify the populations of concern who are most likely to experience unequal burdens from environmental harms; specifically, minority populations, low-income populations, and indigenous peoples (59 FR 7629, February 16, 1994). Additionally, Executive Order 13985 is intended to advance racial equity and support underserved communities through Federal government actions (86 FR 7009, January 20, 2021). The EPA defines EJ as ''the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.'' [170] The EPA further defines the term fair treatment to mean that ''no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies.'' In recognizing that minority and low-income populations often bear an unequal burden of environmental harms and risks, the EPA continues to consider ways of protecting them from adverse public health and environmental effects of air pollution.

The locations of the new, modified, and reconstructed sources that will become subject to NSPS subpart VVb are not known. Therefore, to examine

[170] See footnote 168.

the potential for any EJ issues that might be associated with the proposed NSPS subpart VVb, we performed a proximity demographic analysis for 575 existing facilities that are currently subject to NSPS subparts VV or VVa. These represent facilities that might modify or reconstruct in the future and become subject to the NSPS subpart VVb requirements. This proximity demographic analysis characterized the individual demographic groups of the populations living within 5 km and within 50 km (~31 miles) of the existing facilities. The EPA then compared the data from this analysis to the national average for each of the demographic groups.

The proximity demographic analysis shows that, within 5 km of the facilities, the percent of the population that is African American is double the national average (24 percent versus 12 percent). The percent of people within 5 km living below the poverty level is significantly higher than the national average (20 percent versus 13 percent). The percent of people living within 5 km that are over 25 without a high school diploma is also higher than the national average (17 percent versus 12 percent). The proximity demographics analysis shows that within 50 km of the facilities, the percent of the population that is African American is above the national average (15 percent versus 12 percent). At 50 km, the remaining percentages for the demographics are similar to or below the national average.

TABLE 39—PROXIMITY DEMOGRAPHIC ASSESSMENT RESULTS FOR EXISTING FACILITIES SUBJECT TO NSPS SUBPARTS VV AND VVA

Demographic group	Nationwide	Population within 50 km of 575 facilities	Population within 5 km of 575 facilities
Total Population	328,016,242	140,946,443	8,084,246
Race and Ethnicity by Percent			
White	60	62	50
African American	12	15	24
Native American	0.7	0.4	0.4
Hispanic or Latino (includes white and nonwhite)	19	15	20
Other and Multiracial	8	8	5
Income by Percent			
Below Poverty Level	13	14	20
Above Poverty Level	87	86	80
Education by Percent			
Over 25 and without a High School Diploma	12	12	17
Over 25 and with a High School Diploma	88	88	83
Linguistically Isolated by Percent			
Linguistically Isolated	5	5	6

Notes:

• The nationwide population count and all demographic percentages are based on the Census' 2015–2019 American Community Survey five-year block group averages and include Puerto Rico. Demographic percentages based on different averages may differ. The total population counts are based on the 2010 Decennial Census block populations.

• To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category for these analyses. A person is identified as one of five racial/ethnic categories above: White, African American, Native American, Other and Multiracial, or Hispanic/Latino. A person who identifies as Hispanic or Latino is counted as Hispanic/Latino for this analysis, regardless of what race this person may have also identified as in the Census.

The proposed NSPS subpart VVb covers VOC emissions from certain equipment leaks in the SOCMI from sources that are constructed, reconstructed, or modified after April 25, 2023. NSPS subpart VVb will result in reduced VOC emissions by requiring the same requirements in NSPS subpart VVa plus requiring that all gas/vapor and light liquid valves be monitored quarterly at a leak definition of 100 ppm and all connectors be monitored once every 12 months at a leak definition of 500 ppm. For each of these requirements, we are proposing skip periods for good performance.

The methodology and the results (including facility-specific results) of the demographic analysis are presented in the document titled *Analysis of Demographic Factors for Populations Living Near Existing Facilities Subject to NSPS Subparts VV or VVa,* which is available in the docket for this action.

6. Proximity Demographics Analysis for NSPS Subparts IIIa, NNNa, and RRRa

Consistent with the EPA's commitment to integrating EJ in the Agency's actions, and following the directives set forth in multiple Executive Orders as well as CAA section 111(b)(1)(B), the Agency has carefully considered the impacts of the proposed NSPS subparts IIIa, NNNa, and RRRa on communities with EJ concerns. The proposed NSPS subparts IIIa, NNNa, and RRRa cover VOC emissions from certain process vents in the SOCMI from sources that are constructed, reconstructed, or modified after April 25, 2023.

Executive Order 12898 directs the EPA to identify the populations of concern who are most likely to experience unequal burdens from environmental harms; specifically, minority populations, low-income populations, and indigenous peoples (59 FR 7629, February 16, 1994). Additionally, Executive Order 13985 is intended to advance racial equity and support underserved communities through Federal government actions (86 FR 7009, January 20, 2021). The EPA defines EJ as ''the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and

enforcement of environmental laws, regulations, and policies.'' [171] The EPA further defines the term fair treatment to mean that ''no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies.'' In recognizing that minority and low-income populations often bear an unequal burden of environmental harms and risks, the EPA continues to consider ways of protecting them from adverse public health and environmental effects of air pollution.

The locations of the new, modified, and reconstructed sources that will become subject to NSPS subparts IIIa, NNNa, and RRRa are not known. Therefore, to examine the potential for any EJ issues that might be associated with the proposed subparts, we performed a proximity demographic analysis for 266 existing facilities that are currently subject to NSPS subpart III, NNN, or RRR. These represent facilities that might modify or reconstruct in the future and become subject to the proposed NSPS requirements. This proximity demographic analysis characterized the individual demographic groups of the populations living within 5 km (~3.1 miles) and within 50 km (~31 miles) of the existing facilities. The EPA then compared the data from this analysis to the national average for each of the demographic groups.

The proximity demographic analysis shows that, within 5 km of the facilities, the percent of the population that is African American is almost double the national average (23 percent versus 12 percent). In addition, the percent of the population within 5 km of the facilities that is Hispanic or Latino is also above the national average (23 percent versus 19 percent). The percent of people within 5 km living below the poverty level is significantly higher than the national average (20 percent versus 13 percent). The percent of people living within 5 km that are over 25 without a high school diploma is also higher than the national average (17 percent versus 12 percent). The proximity demographics analysis shows that within 50 km of the facilities, the percent of the population that is African American is above the national average (18 percent versus 12 percent). At 50 km, the remaining percentages for the demographics are similar to or below the national average.

TABLE 40—PROXIMITY DEMOGRAPHIC ASSESSMENT RESULTS FOR EXISTING FACILITIES SUBJECT TO NSPS SUBPARTS III, NNN, OR RRR

Demographic group	Nationwide	Population within 50 km of 266 facilities	Population within 5 km of 266 facilities
Total Population	328,016,242	96,017,770	4,624,154
Race and Ethnicity by Percent			
White	60	59	48
African American	12	18	23
Native American	0.7	0.4	0.4
Hispanic or Latino (includes white and nonwhite)	19	15	23
Other and Multiracial	8	7	5
Income by Percent			
Below Poverty Level	13	14	20
Above Poverty Level	87	86	80
Education by Percent			
Over 25 and without a High School Diploma	12	12	17
Over 25 and with a High School Diploma	88	88	83
Linguistically Isolated by Percent			
Linguistically Isolated	5	5	6

Notes:
• The nationwide population count and all demographic percentages are based on the Census' 2015–2019 American Community Survey five-year block group averages and include Puerto Rico. Demographic percentages based on different averages may differ. The total population counts are based on the 2010 Decennial Census block populations.
• To avoid double counting, the ''Hispanic or Latino'' category is treated as a distinct demographic category for these analyses. A person is identified as one of five racial/ethnic categories above: White, African American, Native American, Other and Multiracial, or Hispanic/Latino. A person who identifies as Hispanic or Latino is counted as Hispanic/Latino for this analysis, regardless of what race this person may have also identified as in the Census.

The proposed NSPS subparts IIIa, NNNa, and RRRa cover VOC emissions from certain process vents in the SOCMI from sources that are constructed, reconstructed, or modified after April 25, 2023. The proposed NSPS subparts IIIa, NNNa, and RRRa will result in reduced VOC emissions by requiring all vent streams from an affected facility to be controlled, eliminating the relief valve discharge exemption from the definition of ''vent stream'' such that any relief valve discharge to the atmosphere of a vent stream is a violation of the emissions standard, and prohibiting an owner or operator from bypassing the APCD at any time, and if a bypass is used, it is considered a violation. In addition, we are proposing the same operating and monitoring requirements for flares that we are proposing for flares subject to the HON, the same work practice standards for maintenance vents that we are

[171] See footnote 168.

proposing for HON process vents, and the same monitoring requirements that we are proposing for HON process vents for adsorbers that cannot be regenerated and regenerative adsorbers that are regenerated offsite (see section III.C.3.b of this preamble).

The methodology and the results (including facility-specific results) of the demographic analysis are presented in the document titled *Analysis of Demographic Factors for Populations Living Near Existing Facilities Subject to NSPS Subparts III, NNN, or RRR,* which is available in the docket for this action.

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

This action proposes to address risk from, among other HAP, EtO and chloroprene. In addition, the EPA's Policy on Children's Health [172] also applies to this action. Accordingly, we have evaluated the environmental health or safety effects of EtO and chloroprene emissions and exposures on children.

Because EtO and chloroprene are mutagenic (*i.e.,* they can damage DNA), children are expected to be more susceptible to their harmful effects. To take this into account, as part of the risk assessment in support of this rulemaking, the EPA followed its guidelines [173] and applied age-dependent adjustment factors (ADAFs) for childhood exposures (from birth up to 16 years of age). With the ADAF applied to account for greater susceptibility of children, the adjusted EtO inhalation URE is 5×10^{-3} per µg/m^3 and the adjusted chloroprene inhalation URE is 4.8×10^{-4} per µg/m^3. It should be noted that, because EtO and chloroprene are mutagenic, emission reductions proposed in this preamble will be particularly beneficial to children. The results of the risk assessment are contained in sections III.A and B of this preamble and further documented in the risk reports, *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which are available in the docket for this rulemaking.

V. 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 analyses. We are specifically interested in receiving any information regarding developments in practices, processes, and control technologies that reduce emissions. We are also interested in receiving information on costs, emissions, and product recovery and we request comment on how to address the non-monetized costs and benefits of the proposed rule. We request comment on data and approaches to monetize the health benefits of reducing exposure to ethylene oxide, chloroprene, benzene, 1,3-butadiene, ethylene dichloride, vinyl chloride, chlorine, maleic anhydride, and acrolein. For our production estimates, we request comment on the assumptions of the simulation model and their consistency with market conditions and dynamics. We welcome specific comment on impacts on downstream industries and markets, including prices for medical supplies, foods, microchips, semiconductors, gasoline, or other products. In addition, we request estimates of any potential loss of production while bringing facilities into compliance and forgone returns due to displaced investment. Finally, the EPA attempted to ensure that the SSM provisions we are proposing to eliminate are inappropriate, unnecessary, or redundant in the absence of the SSM exemption and are specifically seeking comment on whether we have successfully done so.

With respect to EtO emissions from equipment leaks, given the uncertainty of emissions from these fugitive sources and that they drive risk for a number of HON facilities (*i.e.,* seven HON facilities present ≥100-in-1 million cancer risk from emissions of EtO from equipment leaks at HON processes), the EPA is also soliciting comment on whether additional control options should be considered for equipment leaks beyond those discussed in section III.B.2.a.ii of this preamble, which proposes that valves, connectors, and pumps in EtO service be monitored monthly using EPA Method 21 of 40 CFR part 60, appendix A–7, with leak definitions of 100 ppm, 100 ppm, and 500 ppm, respectively. In particular, the EPA is aware of a number of additional technologies used by other regulated industries that could be implemented to monitor and/or reduce leaks of EtO, including requiring use of ''leakless'' (*i.e.,* low-emitting) equipment for valves and pumps in EtO service, use of optical gas imaging (OGI) (*i.e.,* use of a thermal infrared camera) to find large leaks faster, and use of leak detection sensor networks (LDSNs) that could potentially identify leaks of EtO at HON facilities.[174] OGI refers to the creation of images of gas emissions through thermal infrared cameras. While the application, specification, and target gases of an OGI instrument may differ, the general function of an OGI camera is to detect the infrared energy of the target gas and filter out the light outside of the infrared frequency range to create an image of the target gas plume. In the context of leak detection, a hand-held OGI camera can create a video image of a plume of gas emanating from a leak. A LDSN comprises a network of leak detection sensor nodes installed to provide coverage of all LDAR applicable components in a process unit and an accompanying analytics platform for identifying potential leak source locations. A short-term excursion of an individual sensor's output above a set baseline level would indicate a possible leak. Facilities can investigate the possible leak within the potential leak source location. The network, analytics platform, and detection response framework are generally designed to enable timely detection of significant emissions so that facilities can more rapidly mitigate leaks.

As EPA does not have sufficient information to evaluate potential additional HAP reductions that may be realized by these technologies in the chemical sector, we solicit comment on the emissions reductions that have been or could be achieved by use of ''leakless'' valves and pumps, use of OGI, and use of LDSNs, the costs and cost-effectiveness of applying these technologies, including any cost-effectiveness comparisons of applying the technologies for different components and at different frequencies, and any relevant available data and studies.

We also request comment on whether and how the application of these technologies would reduce risk, and whether and how EPA should consider application of these technologies to reinforce or enhance the proposed

[172] Children's Health Policy Available at: *https://www.epa.gov/children/childrens-health-policy-and-plan.*

[173] U.S. EPA. 2005. Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens. U.S. Environmental Protection Agency, Washington, DC, EPA/630/R–03/003F. *https://www.epa.gov/sites/default/files/2013-09/documents/childrens_supplement_final.pdf.*

[174] See, *e.g.,* 40 CFR 60.18(g), 40 CFR 61.65(b)(8), 40 CFR 63.11(c), and 40 CFR 63.11956; U.S. Envtl. Prot. Agency, *Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review,* 87 FR 74,702 (Dec. 6, 2022); Notice of Final for Approval of Alternative Means of Emission Limitation (88 FR 8844, February 10, 2023).

equipment leak control requirements. EPA also requests comments on ways to streamline approval of alternative LDAR programs, use of remote sensing techniques, use of sensor networks, or other alternatives for detection of equipment leaks.

VI. Statutory and Executive Order Reviews

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

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

Under section 3(f)(1) of Executive Order 12866, this action is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to recommendations received as part of Executive Order 12866 review have been documented in the docket. The EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis, the *Regulatory Impact Analysis,* is available in the docket for this action.

To satisfy requirements of E.O. 12866, the EPA projected the emissions reductions, costs, and benefits that may result from these proposed rulemakings. These results are presented in detail in the regulatory impact analysis (RIA) accompanying this proposal developed in response to E.O. 12866. We present these results for each of the 10 subparts included in this proposed action, and also cumulatively. This action is economically significant according to E.O. 12866 due to the proposed amendments to the HON. The RIA focuses on the elements of the proposed rulemaking that are likely to result in quantifiable cost or emissions changes compared to a baseline without the proposal that incorporates changes to regulatory requirements. We estimated the cost, emissions, and benefits for the 2024 to 2038 period. We show the PV and EAV of costs, benefits, and net benefits of this action in 2021 dollars.

The initial analysis year in the RIA is 2024 because we assume the large majority of impacts associated with the proposed rulemakings will begin in that year. The NSPS will take effect immediately upon the effective date of the final rule (*i.e.,* 60 days after publication of the final rule in the **Federal Register**) and impact sources constructed after publication of the proposed rule, but these impacts are much lower than those of the other three NESHAP rulemakings in this action. The other three rules, all under the provisions of CAA section 112, will also take effect 60 days after publication of the final rule in the **Federal Register**, but not require compliance with new requirements in some cases until three years after the effective date). Therefore, their impacts (at least the great majority of them) will begin in 2024. The final analysis year for benefits and costs is 2038, which allows us to provide 15 years of projected impacts after all of these rules are assumed to require compliance.

The cost analysis presented in the RIA reflects a nationwide engineering analysis of compliance cost and emissions reductions, of which there are two main components. The first component is a set of representative or model plants for each regulated facility, segment, and control option. The characteristics of the model plant include typical equipment, operating characteristics, and representative factors including baseline emissions and the costs, emissions reductions, and product recovery resulting from each control option. The second component is a set of projections of data for affected facilities, distinguished by vintage, year, and other necessary attributes (*e.g.,* precise content of material in storage vessels). Impacts are calculated by setting parameters on how and when affected facilities are assumed to respond to a particular regulatory regime, multiplying data by model plant cost and emissions estimates, differencing from the baseline scenario, and then summing to the desired level of aggregation. In addition to emissions reductions, some control options result in product recovery, which can then be sold where possible. Where applicable, we present projected compliance costs with and without the projected revenues from product recovery.

The EPA expects health benefits due to the emissions reductions projected under these proposed rulemakings. We expect that HAP emission reductions will improve health and welfare associated with exposure by those affected by these emissions. In addition, the EPA expects that VOC emission reductions that will occur concurrent with the reductions of HAP emissions will improve air quality and are likely to improve health and welfare associated with exposure to ozone, $PM_{2.5}$, SO_2, and HAP. The EPA also expects disbenefits from secondary increases of CO_2, NO_X, CO, and benefits from reductions in methane emissions associated with the control options included in the cost analysis. We estimate the social benefits of GHG reductions expected to occur as a result of the proposed standards using estimates of the social cost of greenhouse gases (SC–GHG),[175] specifically using the social cost of carbon ($SC–CO_2$), social cost of methane ($SC–CH_4$), and social cost of nitrous oxide ($SC–N_2O$). The SC–GHG is the monetary value of the net harm to society associated with a marginal increase in GHG emissions in a given year, or the benefit of avoiding that increase. In principle, SC–GHG includes the value of all climate change impacts (both negative and positive), including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk and natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. The SC–GHG, therefore, reflects the societal value of reducing emissions of the gas in question by one metric ton and is the theoretically appropriate value to use in conducting benefit-cost analyses of policies that affect GHG emissions. In practice, data and modeling limitations naturally restrain the ability of SC–GHG estimates to include all the important physical, ecological, and economic impacts of climate change, such that the estimates are a partial accounting of climate change impacts and will therefore tend to be underestimates of the marginal benefits of abatement. The EPA and other Federal agencies began regularly incorporating SC–GHG estimates in their benefit-cost analyses conducted under Executive Order (E.O.) 12866 [176] since 2008, following a Ninth Circuit Court of Appeals remand of a rule for failing to monetize the benefits of reducing GHG emissions in that rulemaking process. We conduct such

[175] Estimates of the social cost of greenhouse gases are gas-specific (*e.g.,* social cost of carbon ($SC–CO_2$), social cost of methane ($SC–CH_4$), social cost of nitrous oxide ($SC–N_2O$)), but collectively they are referenced as the social cost of greenhouse gases (SC–GHG).

[176] Presidents since the 1970s have issued executive orders requiring agencies to conduct analysis of the economic consequences of regulations as part of the rulemaking development process. E.O. 12866, released in 1993 and still in effect today, requires that for all significant regulatory actions, an agency provide an assessment of the potential costs and benefits of the regulatory action, and that this assessment include a quantification of benefits and costs to the extent feasible. Many statutes also require agencies to conduct at least some of the same analyses required under E.O. 12866, such as the Energy Policy and Conservation Act, which mandates the setting of fuel economy regulations. For purposes of this action, monetized climate benefits are presented for purposes of providing a complete benefit-cost analysis under E.O. 12866 and other relevant executive orders. The estimates of change in GHG emissions and the monetized benefits associated with those changes play no part in the record basis for this action.

an analysis to monetize the benefits of reducing GHG emissions (or disbenefits, if these emissions increase) for this proposal as the EPA has done for recent rulemakings (*e.g.,* the recently promulgated Good Neighbor rule).

Discussion of the monetized and non-monetized benefits and climate disbenefits can be found in Chapter 4 of the RIA which is available in the docket for this rulemaking.

Tables 41 through 45 of this preamble present the emission changes, and PV and EAV of the projected monetized benefits, compliance costs, and net benefits over the 2024 to 2038 period under the proposed rulemaking for each subpart. Table 46 of this preamble presents the same results for the cumulative impact of these rulemakings. All discounting of impacts presented, except for compliance costs, uses discount rates of 3 and 7 percent.

TABLE 41—MONETIZED BENEFITS, COSTS, AND NET BENEFITS OF THE PROPOSED HON AMENDMENTS, 2024 THROUGH 2038

[Dollar estimates in millions of 2021 dollars] [a]

	3 Percent discount rate		7 Percent discount rate	
	PV	EAV	PV	EAV
Benefits [b]	$78 and $690	$6.5 and $58	$53 and $470	$5.8 and $51.
Climate Disbenefits (3 percent) [c]	$(25.4)	$(2.1)	$(25.4)	$(2.1).
Net Compliance Costs [d]	$1,385	$116	$922	$101.
Compliance Costs	$1,393	$117	$927	$102.
Value of Product Recovery	$8	$1	$5	$0.8.
Net Benefits	$(1,280) and $(670)	$(107) and $(56)	$(844) and $(427)	$(93) and $(48).

Nonmonetized Benefits: HAP emissions reductions of 5,726 tpy including 58 tpy reduction in ethylene oxide emissions. Health effects of reduced exposure to ethylene oxide and also chloroprene, benzene, 1,3-butadiene, vinyl chloride, ethylene dichloride, chlorine, maleic anhydride, and acrolein.

[a] Values rounded to two significant figures. Totals may not appear to add correctly due to rounding. Short tons are standard English tons (2,000 pounds).

[b] Monetized benefits include ozone related health benefits associated with reductions in VOC emissions. The health benefits are associated with several point estimates and are presented at real discount rates of 3 and 7 percent. The two benefits estimates are separated by the word ''and'' to signify that they are two separate estimates. The estimates do not represent lower- and upper-bound estimates. Benefits from annual HAP reductions and VOC reductions outside of the ozone season remain unmonetized and are thus not reflected in the table. Climate benefits and disbenefits are estimated at a real discount rate of 3 percent. The unmonetized effects also include disbenefits resulting from the secondary impact of an increase in CO emissions. Please see Chapter 4 of the RIA for more discussion of the health and climate benefits and disbenefits.

[c] Climate benefits and disbenefits are based on changes (decreases and increases) in CO_2, methane and N_2O emissions and are calculated using four different estimates of the social cost of carbon (SC–GHG) (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate). For the presentational purposes of this table, we show the benefits and disbenefits associated with the average SC–GHG at a 3 percent discount rate, but the Agency does not have a single central SC–GHG point estimate. We emphasize the importance and value of considering the disbenefits calculated using all four SC–GHG estimates. As discussed in Chapter 4 of the RIA, a consideration of climate disbenefits calculated using discount rates below 3 percent, including 2 percent and lower, is also warranted when discounting intergenerational impacts. The use of parentheses surrounding a number denotes a negative value for that number. For climate disbenefits, a negative disbenefit is a benefit (and thus a positive value).

[d] Net compliance costs are the rulemaking costs minus the value of recovered product. A negative net compliance costs occurs when the value of the recovered product exceeds the compliance costs.

TABLE 42—MONETIZED BENEFITS, COMPLIANCE COSTS, AND NET BENEFITS OF THE PROPOSED P&R I AMENDMENTS, 2024 THROUGH 2038

[Dollar estimates in millions of 2021 dollars] [a]

	3 Percent discount rate		7 Percent discount rate	
	PV	EAV	PV	EAV
Benefits [b]	$2.6 and $23	$0.22 and $1.9	$1.8 and $16	$0.19 and $1.7.
Climate Disbenefits (3 percent) [c]	$40.5	$3.4	$40.5	$3.4.
Net Compliance Costs [d]	$121	$10	$78	$8.6.
Compliance Costs	$122	$10.2	$79	$8.7.
Value of Product Recovery	$1	$0.2	$1	$0.1.
Net Benefits	$(159) and $(139)	$(13) and $(12)	$(116) and $(103)	$(12) and $(10).

Nonmonetized Benefits: HAP emissions reductions 326 tpy including 14 tpy reduction in chloroprene emissions. Health effects of reduced exposure to chloroprene and benzene, 1,3-butadiene, vinyl chloride, ethylene dichloride, chlorine, maleic anhydride, and acrolein.

[a] Values rounded to two significant figures. Totals may not appear to add correctly due to rounding. Short tons are standard English tons (2,000 pounds).

[b] Monetized benefits include ozone related health benefits associated with reductions in VOC emissions. The health benefits are associated with several point estimates and are presented at real discount rates of 3 and 7 percent. The two benefits estimates are separated by the word ''and'' to signify that they are two separate estimates. The estimates do not represent lower- and upper-bound estimates and should not be summed. Benefits from annual HAP reductions and VOC reductions outside of the ozone season remain unmonetized and are thus not reflected in the table.

[c] Climate benefits and disbenefits are based on changes (decreases and increases) in CO_2, methane and N_2O emissions and are calculated using four different estimates of the social cost of carbon (SC–GHG) (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate). For the presentational purposes of this table, we show the benefits and disbenefits associated with the average SC–GHG at a 3 percent discount rate, but the Agency does not have a single central SC–GHG point estimate. We emphasize the importance and value of considering the disbenefits calculated using all four SC–GHG estimates. As discussed in Chapter 4 of the RIA, a consideration of climate disbenefits calculated using discount rates below 3 percent, including 2 percent and lower, is also warranted when discounting intergenerational impacts. The use of parentheses surrounding a number denotes a negative value for that number.

[d] Net compliance costs are the rulemaking costs minus the value of recovered product. A negative net compliance costs occurs when the value of the recovered product exceeds the compliance costs.

TABLE 43—MONETIZED BENEFITS, COMPLIANCE COSTS, EMISSION REDUCTIONS AND NET BENEFITS OF THE PROPOSED P&R II AMENDMENTS, 2024 THROUGH 2038

[Dollar estimates in millions of 2021 dollars] [a]

	3 Percent discount rate		7 Percent discount rate	
	PV	EAV	PV	EAV
Benefits [b]	<$0.1	<$0.1	<$0.1	<$0.1.
Net Compliance Costs [c]	$4	$0.4	$3	$0.4
Compliance Costs	$4	$0.4	$3	$0.4
Value of Product Recovery	$0	$0	$0	$0
Net Benefits	$(4)	$(0.4)	$(3)	$(0.4).

Nonmonetized Benefits: HAP emissions reductions 1 tpy. Health effects of reduced exposure to epichlorohydrin.

[a] Values rounded to two significant figures. Totals may not appear to add correctly due to rounding. Short tons are standard English tons (2,000 pounds).

[b] Monetized benefits include ozone related health benefits associated with reductions in VOC emissions. The health benefits are associated with several point estimates and are presented at real discount rates of 3 and 7 percent. The two benefits estimates are separated by the word "and" to signify that they are two separate estimates. The estimates do not represent lower- and upper-bound estimates. Benefits from VOC reductions outside of the ozone season remain unmonetized and are thus not reflected in the table.

[c] Net compliance costs are the rulemaking costs minus the value of recovered product. A negative net compliance costs occurs when the value of the recovered product exceeds the compliance costs.

TABLE 44—MONETIZED BENEFITS, COSTS, AND NET BENEFITS OF PROPOSED NSPS SUBPART VVb, 2024 THROUGH 2038

[Dollar estimates in millions of 2021 dollars] [a]

	3 Percent discount rate		7 Percent discount rate	
	PV	EAV	PV	EAV
Benefits [b]	$1.2 and $11	$0.10 and $0.93	$0.85 and $7.5	$0.09 and $0.82.
Net Compliance Costs [c]	$11	$0.9	$8	$0.9.
Compliance Costs	$13.3	$1.1	$9.7	$1.1.
Value of Product Recovery	$2.3	$0.2	$1.7	$0.2.
Net Benefits	$(9.8) and $0	$(0.8) and $0.03	$(7.15) and $(0.5)	$(0.81) and $(0.08).

[a] Values rounded to two significant figures. Totals may not appear to add correctly due to rounding. Short tons are standard English tons (2,000 pounds).

[b] Monetized benefits include ozone related health benefits associated with reductions in VOC emissions. The health benefits are associated with several point estimates and are presented at real discount rates of 3 and 7 percent. The two benefits estimates are separated by the word "and" to signify that they are two separate estimates. The estimates do not represent lower- and upper-bound estimates. Benefits from HAP reductions and VOC reductions outside of the ozone season remain unmonetized and are thus not reflected in the table. There are no climate benefits and disbenefits for this proposed rule.

[c] Net compliance costs are the rulemaking costs minus the value of recovered product. A negative net compliance costs occurs when the value of the recovered product exceeds the compliance costs.

TABLE 45—MONETIZED BENEFITS, COSTS, AND NET BENEFITS OF PROPOSED NSPS SUBPARTS IIIa, NNNa, AND RRRa, 2024 THROUGH 2038

[Dollar estimates in millions of 2021 dollars] [a]

	3 Percent discount rate		7 Percent discount rate	
	PV	EAV	PV	EAV
Benefits [b]	$4.6 and $41	$0.39 and $3.5	$3.2 and $28	$0.35 and $3.0.
Climate Disbenefits (3 percent) [c]	$(6.8)	$(0.57)	$(6.8)	$(0.57).
Net Compliance Costs [d]	$56	$4.7	$40	$4.4.
Compliance Costs	$56	$4.7	$40	$4.4.
Value of Product Recovery	$0	$0	$0	$0.
Net Benefits	$(45) and $(8)	$(3.7) and $(0.6)	$(30) and $(5)	$(3.5) and $(0.8).

[a] Values rounded to two significant figures. Totals may not appear to add correctly due to rounding. Short tons are standard English tons (2,000 pounds).

[b] Monetized benefits include ozone related health benefits associated with reductions in VOC emissions. The health benefits are associated with several point estimates and are presented at real discount rates of 3 and 7 percent. The two benefits estimates are separated by the word ''and'' to signify that they are two separate estimates. The estimates do not represent lower- and upper-bound estimates. Benefits from HAP reductions and VOC reductions outside of the ozone season remain unmonetized and are thus not reflected in the table. Climate disbenefits are estimated at a real discount rate of 3 percent. The unmonetized effects also include disbenefits resulting from the secondary impact of an increase in CO emissions. Please see Chapter 4 of the RIA for more discussion of the climate disbenefits.

[c] Climate disbenefits (inclusive of benefits) are based on changes (increases) in CO_2 and N_2O emissions and decreases in methane emissions and are calculated using four different estimates of the social cost of carbon (SC–GHG) (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate). For the presentational purposes of this table, we show the disbenefits associated with the average SC–GHG at a real 3 percent discount rate, but the Agency does not have a single central SC–GHG point estimate. We emphasize the importance and value of considering the disbenefits calculated using all four SC–GHG estimates. Please see Table 4–11 of the RIA for the full range of SC–GHG estimates. As discussed in Chapter 4 of the RIA, a consideration of climate benefits and disbenefits calculated using discount rates below 3 percent, including 2 percent and lower, is also warranted when discounting intergenerational impacts.

[d] Net compliance costs are the rulemaking costs minus the value of recovered product. A negative net compliance costs occurs when the value of the recovered product exceeds the compliance costs. A number in parentheses denotes a negative value.

TABLE 46—CUMULATIVE MONETIZED BENEFITS, COSTS, EMISSION REDUCTIONS AND NET BENEFITS OF THE PROPOSED RULEMAKINGS, 2024 THROUGH 2038

[Dollar estimates in millions of 2021 dollars] [a]

	3 Percent discount rate		7 Percent discount rate	
	PV	EAV	PV	EAV
Benefits [b]	$81 and $730	$6.8 and $61	$56 and $490	$6.1 and $54.
Climate Disbenefits (3 percent) [c]	$8.2	$0.7	$8.2	$0.7.
Net Compliance Costs [d]	$1,579	$132	$1,052	$121.
Compliance Costs	$1,590	$133.4	$1,059.7	$122.1.
Value of Product Recovery	$11	$1.4	$7.7	$1.1.
Net Benefits	$(1,506) and $(857)	$(126) and $(71)	$(1,100) and $(570)	$(110) and $(63).

Nonmonetized Benefits: HAP emissions reductions of 6,053 tons of HAP. Health effects of reduced exposure to ethylene oxide, chloroprene, benzene, 1,3-butadiene, vinyl chloride, ethylene dichloride, chlorine, maleic anhydride, acrolein, and epichlorohydrin.

[a] Values rounded to two significant figures. Totals may not appear to add correctly due to rounding. Short tons are standard English tons (2,000 pounds).

[b] Monetized benefits include ozone related health benefits associated with reductions in VOC emissions. The health benefits are associated with several point estimates and are presented at real discount rates of 3 and 7 percent. The two benefits estimates are separated by the word ''and'' to signify that they are two separate estimates. The estimates do not represent lower- and upper-bound estimates. Benefits from HAP reductions and VOC reductions outside of the ozone season remain unmonetized and are thus not reflected in the table. Climate disbenefits (inclusive of benefits) are estimated at a real discount rate of 3 percent. The unmonetized effects also include disbenefits resulting from the secondary impact of an increase in CO emissions. Please see Chapter 4 of the RIA for more discussion of the climate disbenefits.

[c] Climate disbenefits are based on changes (increases) in CO_2 and N_2O emissions and decreases in methane emissions and are calculated using four different estimates of the social cost of carbon (SC–GHG) (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate). For the presentational purposes of this table, we show the disbenefits associated with the average SC–GHG at a 3 percent discount rate, but the Agency does not have a single central SC–GHG point estimate. We emphasize the importance and value of considering the disbenefits calculated using all four SC–GHG estimates. Please see Table 4–11 of the RIA for the full range of SC–GHG estimates. As discussed in Chapter 4 of the RIA, a consideration of climate disbenefits calculated using discount rates below 3 percent, including 2 percent and lower, is also warranted when discounting intergenerational impacts.

[d] Net compliance costs are the rulemaking costs minus the value of recovered product. A negative net compliance costs occurs when the value of the recovered product exceeds the compliance costs.

B. Paperwork Reduction Act (PRA)

1. HON

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2753.01. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing amendments to the HON that revise provisions pertaining to emissions from flares, PRDs, process vents, storage vessels, pressure vessels, storage vessel degassing, heat exchange systems, maintenance vents, wastewater, and equipment leaks. The EPA is also proposing to add requirements pertaining to EtO emissions from flares, process vents, storage vessels, heat exchange systems, equipment leaks, and wastewater; and dioxins and furans emissions from process vents. In addition, the EPA is proposing amendments to the HON that revise provisions pertaining to emissions during periods of SSM, add requirements for electronic reporting of periodic reports and performance test results, fenceline monitoring, carbon adsorbers, and bypass monitoring, and make other minor clarifications and corrections. This information will be collected to assure compliance with the HON.

- Respondents/affected entities: Owners or operators of HON facilities. Respondent's obligation to respond: Mandatory (40 CFR part 63, subparts F, G, H, and I).
- Estimated number of respondents: 209 (assumes two new respondents over the next 3 years). Frequency of response: Initially, quarterly, semiannually, and annually.
- Total estimated burden: average annual recordkeeping and reporting burden is 83,600 hours (per year) to comply with the proposed amendments in the HON. Burden is defined at 5 CFR 1320.3(b).
- Total estimated cost: average annual cost is $70,900,000 (per year) which includes $62,700,000 annualized capital and operations and maintenance costs, to comply with the proposed amendments in the HON.

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 May 25, 2023. The EPA will respond to any ICR-related comments in the final rule.

2. P&R I

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2410.06. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing amendments to P&R I that revise provisions pertaining to emissions from flares, PRDs, continuous process vents, batch process vents, storage vessels, pressure vessels, storage vessel degassing, heat exchange systems, maintenance vents, wastewater, and equipment leaks. The EPA is also proposing to add requirements pertaining to: chloroprene emissions from process vents, storage vessels, and wastewater; and dioxins and furans emissions from continuous process vents and batch process vents. In addition, the EPA is proposing amendments to P&R I that revise provisions pertaining to emissions during periods of SSM, add requirements for electronic reporting of periodic reports and performance test results, fenceline monitoring, carbon adsorbers, and bypass monitoring, and make other minor clarifications and corrections. This information will be collected to assure compliance with P&R I.

- Respondents/affected entities: Owners or operators of P&R I facilities. Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart U).
- Estimated number of respondents: 19 (assumes no new respondents over the next 3 years). Frequency of response: Initially, quarterly, semiannually, and annually.
- Total estimated burden: average annual recordkeeping and reporting burden is 8,126 hours (per year) to comply with the proposed amendments in P&R I. Burden is defined at 5 CFR 1320.3(b).
- Total estimated cost: average annual cost is $3,480,000 (per year) which includes $2,680,000 annualized capital and operations and maintenance costs, to comply with the proposed amendments in P&R I.

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 May 25, 2023. The EPA will respond to any ICR-related comments in the final rule.

3. P&R II

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 1681.11. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing amendments to P&R II to add requirements pertaining to: heat exchange systems, PRDs, dioxins and furans emissions from process vents, and maintenance vents. In addition, the EPA is proposing amendments to P&R II that revise provisions pertaining to emissions during periods of SSM, add requirements for electronic reporting of periodic reports and performance test results, and make other minor clarifications and corrections. This information will be collected to assure compliance with P&R II.

- Respondents/affected entities: Owners or operators of P&R II facilities. Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart W).
- Estimated number of respondents: 5 (assumes no new respondents over the next 3 years). Frequency of response: Initially, semiannually, and annually.
- Total estimated burden: average annual recordkeeping and reporting burden is 202 hours (per year) to comply with the proposed amendments in P&R II. Burden is defined at 5 CFR 1320.3(b).
- Total estimated cost: average annual cost is $1,780,000 (per year) which includes $1,760,000 annualized capital and operations and maintenance costs, to comply with the proposed amendments in P&R II.

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 May 25, 2023. The EPA will respond to any ICR-related comments in the final rule.

4. NSPS Subparts VV, VVa, III, NNN, and RRR

This action does not impose any new information collection burden under the PRA for NSPS subparts VV, VVa, III, NNN, and RRR. OMB has previously approved the information collection activities contained in the existing regulations and has assigned OMB Control number 2060–0443 for 40 CFR part 60 subparts VV, VVa, III, NNN, and RRR (this one OMB Control number is for the Consolidated Federal Air Rule in 40 CFR part 65 which presents the burden for complying with 40 CFR part 65, but also presents the burden for facilities complying with each individual subpart). This action is believed to result in no changes to the information collection requirements of these NSPS, so that the information collection estimate of project cost and hour burden from these NSPS have not been revised.

5. NSPS Subpart VVb

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2755.01. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing in a new NSPS subpart VVb the same requirements in NSPS subpart VVa plus requiring that

all gas/vapor and light liquid valves be monitored quarterly at a leak definition of 100 ppm and all connectors be monitored once every 12 months at a leak definition of 500 ppm. In addition, the EPA is proposing to remove SSM provisions (the standards apply at all times), add requirements for electronic reporting of periodic reports, and make other minor clarifications and corrections. This information will be collected to assure compliance with the NSPS subpart VVb.

- Respondents/affected entities: Owners or operators of certain equipment leaks in the SOCMI. Respondent's obligation to respond: Mandatory (40 CFR part 60, subpart VVb).
- Estimated number of respondents: 36 (assumes 36 new respondents over the next 3 years). Frequency of response: Initially, occasionally, and annually.
- Total estimated burden: average annual recordkeeping and reporting burden is 5,414 hours (per year) to comply with all of the requirements in the NSPS. Burden is defined at 5 CFR 1320.3(b).
- Total estimated cost: average annual cost is $4,540,000 (per year) which includes $4,000,000 annualized capital and operations and maintenance costs, to comply with all of the requirements in the NSPS.

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 May 25, 2023. The EPA will respond to any ICR-related comments in the final rule.

6. NSPS Subpart IIIa

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2756.01. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing requirements for new, modified, or reconstructed sources as follows: require owners and operators reduce emissions of TOC (minus methane and ethane) from all vent streams of an affected facility (and not allow the alternative of maintaining a TRE index value greater than 1 without the use of a control device); exclude SSM provisions (and instead, the standards apply at all times); revise monitoring requirements for flares; add maintenance vent requirements; revise requirements for adsorber monitoring; exclude the relief valve discharge exemption such that any relief valve discharge to the atmosphere of a vent stream is a violation of the emissions standard; and prohibit an owner or operator from bypassing the control device at any time, and to report any such violation. This information will be collected to assure compliance with the NSPS subpart IIIa.

- Respondents/affected entities: Owners or operators of air oxidation unit processes in the SOCMI. Respondent's obligation to respond: Mandatory (40 CFR part 60, subpart IIIa).
- Estimated number of respondents: 6 (assumes 6 new respondents over the next 3 years). Frequency of response: Initially, semiannually, and annually.
- Total estimated burden: average annual recordkeeping and reporting burden is 275 hours (per year) to comply with all of the requirements in the NSPS. Burden is defined at 5 CFR 1320.3(b).
- Total estimated cost: average annual cost is $3,820,000 (per year) which includes $3,800,000 annualized capital and operations and maintenance costs, to comply with all of the requirements in the NSPS.

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 May 25, 2023. The EPA will respond to any ICR-related comments in the final rule.

7. NSPS Subpart NNNa

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2757.01. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing requirements for new, modified, or reconstructed sources as follows: require owners and operators reduce emissions of TOC (minus methane and ethane) from all vent streams of an affected facility (and not allow the alternative of maintaining a TRE index value greater than 1 without the use of a control device); exclude SSM provisions (and instead, the standards apply at all times); revise monitoring requirements for flares; add maintenance vent requirements; revise requirements for adsorber monitoring; exclude the relief valve discharge exemption such that any relief valve discharge to the atmosphere of a vent stream is a violation of the emissions standard; and prohibit an owner or operator from bypassing the control device at any time, and to report any such violation. This information will be collected to assure compliance with the NSPS subpart NNNa.

- Respondents/affected entities: Owners or operators of distillation operations in the SOCMI. Respondent's obligation to respond: Mandatory (40 CFR part 60, subpart NNNa).
- Estimated number of respondents: 7 (assumes 7 new respondents over the next 3 years). Frequency of response: Initially, semiannually, and annually.
- Total estimated burden: average annual recordkeeping and reporting burden is 288 hours (per year) to comply with all of the requirements in the NSPS. Burden is defined at 5 CFR 1320.3(b).
- Total estimated cost: average annual cost is $4,460,000 (per year) which includes $4,430,000 annualized capital and operations and maintenance costs, to comply with all of the requirements in the NSPS.

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 May 25, 2023. The EPA will respond to any ICR-related comments in the final rule.

8. NSPS Subpart RRRa

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2759.01. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing requirements for new, modified, or reconstructed sources as follows: require owners and operators reduce emissions of TOC (minus methane and ethane) from all vent streams of an affected facility (and not allow the alternative of maintaining a TRE index value greater than 1 without the use of a control device); exclude SSM provisions (and instead, the standards apply at all times); revise monitoring requirements for flares; add maintenance vent requirements; revise requirements for adsorber monitoring; exclude the relief valve discharge exemption such that any relief valve discharge to the atmosphere of a vent stream is a violation of the emissions standard; and prohibit an owner or operator from bypassing the control device at any time, and to report any such violation. This information will be collected to assure compliance with the NSPS subpart RRRa.

- Respondents/affected entities: Owners or operators of reactor processes in the SOCMI. Respondent's obligation to respond: Mandatory (40 CFR part 60, subpart RRRa).
- Estimated number of respondents: 6 (assumes 6 new respondents over the next 3 years). Frequency of response: Initially, semiannually, and annually.
- Total estimated burden: average annual recordkeeping and reporting burden is 275 hours (per year) to comply with all of the requirements in the NSPS. Burden is defined at 5 CFR 1320.3(b).
- Total estimated cost: average annual cost is $3,820,000 (per year) which includes $3,800,000 annualized capital and operations and maintenance costs, to comply with all of the requirements in the NSPS.

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 May 25, 2023. The EPA will respond to any ICR-related comments in the final rule.

C. Regulatory Flexibility Act (RFA)

I certify that each of the proposed rules in this action will not have a significant economic impact on a substantial number of small entities under the RFA. The small entities subject to the requirements of this action are small businesses. For the proposed amendments to the HON, the Agency has determined that all small entities affected by this action, estimated to be 10, may experience an average impact of costs being less than 0.5 percent of revenues, not including product recovery, or about 0.43 percent, including product recovery from compliance. Two of these ten entities experienced costs above one percent of revenues, neither had costs exceeding three percent of revenues and represent a small total number of impacted entities. For the proposed amendments to P&R I, one small entity is impacted and its impact is costs less than 0.5 percent of revenues. For the proposed amendments to P&R II, no small entities are impacted. Details of the analysis for each proposed rule are presented in the Regulatory Impact Analysis for this action, which is found in the docket.

D. Unfunded Mandates Reform Act (UMRA)

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

E. 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.

F. 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 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.

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

This action is subject to Executive Order 13045 because it is an economically significant regulatory action under section 3(f)(1) of Executive Order 12866, and the EPA believes that the environmental health or safety risk addressed by this action may have a disproportionate effect on children. Accordingly, we have evaluated the environmental health or safety effects of EtO and chloroprene emissions on children. The results of this evaluation are contained in sections II.E and F, III.A and B, and IV.G of this preamble and further documented in the risk reports, *Residual Risk Assessment for the SOCMI Source Category in Support of the 2023 Risk and Technology Review Proposed Rule* and *Residual Risk Assessment for the Polymers & Resins I Neoprene Production Source Category in Support of the 2023 Risk and Technology Review Proposed Rule,* which are available in the docket.

H. 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 EPA expects this proposed action would not reduce crude oil supply, fuel production, coal production, natural gas production, or electricity production. We estimate that this proposed action would have minimal impact on the amount of imports or exports of crude oils, condensates, or other organic liquids used in the energy supply industries. Given the minimal impacts on energy supply, distribution, and use

as a whole nationally, no significant adverse energy effects are expected to occur. For more information on these estimates of energy effects, please refer to the Regulatory Impact Analysis for this proposed rulemaking.

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

This action involves technical standards. Therefore, the EPA conducted searches for the HON, P&R I, and P&R II through the Enhanced National Standards Systems Network (NSSN) Database managed by the American National Standards Institute (ANSI). We also conducted a review of voluntary consensus standards (VCS) organizations and accessed and searched their databases. We conducted searches for EPA Methods 1, 1A, 2, 2A, 2C, 2D, 2F, 2G, 3B, 4, 18, 21, 22, 25A, 25D, 26, 26A, 27 of 40 CFR part 60, Appendix A, 301, 305, 316 and 320 of 40 CFR part 63, Appendix A, 624, 625, 1624, and 1625 of 40 CFR part 136 Appendix A, 624.1 of 40 CFR part 163, Appendix A. During the EPA's VCS search, if the title or abstract (if provided) of the VCS described technical sampling and analytical procedures that are similar to the EPA's reference method, the EPA ordered a copy of the standard and reviewed 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 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 voluntary consensus standards were identified for EPA Methods 1A, 2A, 2D, 2F, 2G, 21, 22, 25D, 27, 305, 316, 624, 624.1, 625, 1624 and 1625. Three voluntary consensus standards were identified as an acceptable alternative to EPA Methods 3B, 18, and 320 for the purposes of this proposed rule, as follows.

The EPA proposes to use the VCS ANSI/ASME PTC 19–10–1981—Part 10, ''Flue and Exhaust Gas Analyses'' as an acceptable alternative to EPA Method 3B (referenced in NSPS subpart RRR and NESHAP subpart G) 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. This method is available at the American National Standards Institute (ANSI), 1899 L Street NW, 11th Floor, Washington, DC 20036 and the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990. See *https://wwww.ansi.org* and *https://www.asme.org.* The standard is available to everyone at a cost determined by ANSI/ASME ($96). ANSI/ASME also offer memberships or subscriptions for reduced costs. The cost of obtaining these methods is not a significant financial burden, making the methods reasonably available.

Also, 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 (referenced in NSPS subparts VV, VVa, VVb, III, IIIa, NNN, NNNa, RRR, and RRRa, and NESHAP subparts F, G, H, I, U, and W) 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 to measure 36 VOC. The test method provides on-site analysis of extracted, unconditioned, and unsaturated (at the instrument) gas samples from 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'' as an acceptable alternative to EPA Method 320 (referenced in NESHAP subparts F, G, and U) with caveats requiring inclusion of selected annexes to the standard as mandatory. ASTM D6348–03(2010) was determined to be equivalent to EPA Method 320 with caveats. ASTM D6348–12e1 is a revised version of ASTM D6348–03(2010) and includes a new section on accepting the results from the direct measurement of a certified spike gas cylinder, but lacks the caveats placed on the ASTM D6348–03(2010) version. The VCS 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. When using ASTM D6348–12e, we are proposing the following conditions must be met: (1) The test plan preparation and implementation in the Annexes to ASTM D 6348–03, Sections A1 through A8 are mandatory; and (2) 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 must be reported in the test report, and all field measurements must be corrected with the calculated %R value for that compound by using the following equation:

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

The two ASTM methods (ASTM D6420–18 and ASTM D6348–12e1) are available at ASTM International, 1850 M Street NW, Suite 1030, Washington, DC 20036. See *https://www.astm.org/.* These standards are available to everyone at a cost determined by the ASTM ($57 and $76, respectively). The ASTM also offers memberships or subscriptions that allow unlimited access to their methods. The cost of obtaining these methods is not a significant financial burden, making the methods reasonably available to stakeholders.

The search identified 13 VCS that were potentially applicable for this rule in lieu of EPA reference methods. After reviewing the available standards, EPA determined that 13 candidate VCS (ASTM D3154–00 (2006), ASTM D3464–96 (2007), ASTM 3796–90 (2004), ISO 10780:1994, ASME B133.9-1994 (2001), ANSI/ASME PTC 19–10–198–Part 10, National Institute of Occupational Safety and Health (NIOSH) Method 2010 ''Amines, Aliphatic'', ASTM D6060–96 (2009), ISO 14965:2000(E), EN 12619 (1999), EN 1911–1,2,3 (1998), ASTM D6735–01 (2009), ASTM D4855–97 (2002)) identified for measuring emissions of pollutants or their surrogates subject to emission standards in the rule would not be practical due to lack of equivalency, documentation, validation

data and other important technical and policy considerations.

Additional information for the VCS search and determinations can be found in the document titled: *Voluntary Consensus Standard Results for National Emission Standards for Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry,* 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 such standards should be used in this regulation.

We are also proposing amendments to 40 CFR part 60, subpart A and 40 CFR part 63, subpart A to address incorporations by reference. We are proposing that 40 CFR 60.485(g)(5) and 40 CFR 60.485a(g)(5) be added to 40 CFR 60.17—''Incorporations by Reference'' paragraph (a)(184) since they were mistakenly not added to 40 CFR 60.17 during the last amendment to this rule.

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

Executive Order 12898 (59 FR 7629, February 16, 1994) directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations (people of color and/or Indigenous peoples) and low-income populations.

The EPA believes that the human health or environmental conditions that exist prior to this action result in or have the potential to result in disproportionate and adverse human health or environmental effects on people of color, low-income people, and/or Indigenous peoples. For the HON, a total of 9.3 million people live within 10 km (~6.2 miles) of the 195 HON facilities that were assessed for risk. The percentages of the population that are African American (25 percent versus 12 percent) and Hispanic or Latino (22 percent versus 19 percent) are higher than the national averages. The proportion of other demographic groups living within 10 km of HON facilities is similar or lower than the national average. For the Neoprene Production source category, a total of 29,000 people live within 5 km of the one neoprene production facility in the country. The percent of the population that is African American (56 percent versus 12 percent) is substantially higher than the national average. The proportion of other demographic groups living within 10 km of HON facilities is similar or lower than the national average. The EPA also conducted a risk assessment of possible cancer risks and other adverse health effects, and found that prior to this proposed regulation, cancer risks were above acceptable levels for a number of areas in which these demographic groups live for the SOCMI and Neoprene Production source categories. See section IV.F for an analysis that characterizes populations living in proximity of facilities and risks prior to the proposed regulation.

The EPA believes that this action is likely to reduce existing disproportionate and adverse effects on people of color, low-income populations and/or Indigenous peoples. This action proposes to establish standards for EtO emission sources at HON processes and chloroprene emission sources at neoprene production processes. This action also proposes amendments to correct and clarify regulatory provisions related to emissions during periods of SSM, including removing general exemptions for periods of SSM and adding work practice standards for periods of SSM where appropriate, address flare combustion efficiency, and require fenceline monitoring for pollutants that drive cancer risks for HON and neoprene production sources. As a result of these proposed changes, we expect zero people to be exposed to risk levels above 100-in-1 million due to emissions from each of these source categories. See sections III.A and B of this preamble for more information about the control requirements of the regulation and the resulting reduction in cancer risks.

The EPA additionally identified and addressed EJ concerns by engaging in outreach activities to communities we expect to be impacted by chemical plants emitting EtO [177] and by requiring the neoprene production facility to take a number of actions to reduce and monitor for fenceline concentrations of chloroprene.[178] The EPA is also proposing that HON and P&R I facilities conduct fenceline monitoring for a number of HAP (*i.e.,* EtO, chloroprene, benzene, 1,3-butadiene, ethylene dichloride and vinyl chloride) and report these data electronically to the EPA so that it can be made public and provide fenceline communities with greater access to information about potential emissions impacts.

The information supporting this Executive Order review is contained in section IV.F of this preamble, as well as in the technical reports, *Analysis of Demographic Factors for Populations Living Near Hazardous Organic NESHAP (HON) Facilities, Analysis of Demographic Factors for Populations Living Near Neoprene Production Facilities,* and *Analysis of Demographic Factors for Populations Living Near Polymers and Resins I and Polymer and Resins II Facilities,* which are available in the docket.

List of Subjects

40 CFR Part 60

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

40 CFR Part 63

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

Michael S. Regan,

Administrator.

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[177] *https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/inspector-general-follow-ethylene-oxide-0.*

[178] *https://www.epa.gov/la/laplace-st-john-baptist-parish-louisiana.*