6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2020-0505; FRL-10017-22-OAR]

RIN 2060-AU66

National Emission Standards for Hazardous Air Pollutants: Carbon Black Production Residual Risk and Technology Review and Carbon Black Production Area Sources Technology Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is proposing amendments to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Carbon Black Production major source category. The proposal addresses the results of the residual risk and technology review (RTR) for this source category as required under the Clean Air Act (CAA). The proposed amendments address hazardous air pollutant (HAP) emissions that occur after the main unit filter of a carbon black production unit, as well as emissions from boilers and process heaters. The proposed amendments also address the startup, shutdown, and malfunction (SSM) provisions of the existing standards, and would require electronic reporting of certain notifications, performance test results, and semiannual reports. Additionally, the proposal addresses the results of the technology review for the Carbon Black Production Area Source NESHAP.

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

comments on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Public hearing: If anyone contacts us requesting a public hearing on or before **[INSERT DATE 5 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we will hold a virtual public hearing. See **SUPPLEMENTARY INFORMATION** for information on requesting and registering for a public hearing.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OAR-2020-0505, 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-2020-0505 in the subject line of the message.
- Fax: (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2020-0505.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2020-0505, 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. Out of an abundance of caution for members of the

public and our staff, the EPA Docket Center and Reading Room are closed to the public, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via *https://www.regulations.gov/* or email, as there may be a delay in processing mail and faxes. Hand deliveries and couriers may be received by scheduled appointment only. For further information on EPA Docket Center services and the current status, please visit us online at *https://www.epa.gov/dockets*.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Mr. Korbin Smith Sector Policies and Programs Division (D243-04), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-2416; fax number: (919) 541-4991; and email address: *smith.korbin@epa.gov*. For specific information regarding the risk modeling methodology, contact Mr. James Hirtz, Health and Environmental Impacts Division (C539-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-0881; fax number: (919) 541-0840; and email address: *hirtz.james@epa.gov*.

SUPPLEMENTARY INFORMATION:

Participation in virtual public hearing. Please note that the EPA is deviating from its typical approach for public hearings because the President has declared a national emergency. Due to the current Centers for Disease Control and Prevention (CDC) recommendations, as well as state and local orders for social distancing to limit the spread of COVID-19, the EPA cannot hold in-person public meetings at this time.

To request a virtual public hearing, contact the public hearing team at (888) 372-8699 or by email at *SPPDpublichearing@epa.gov*. If requested, the virtual hearing will be held on **[INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The hearing will convene at 9:00 a.m. Eastern Time (ET) and will conclude at

3:00 p.m. ET. The EPA may close a session 15 minutes after the last pre-registered speaker has testified if there are no additional speakers. The EPA will announce further details at *https://www.epa.gov/stationary-sources-air-pollution/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen.*

Upon publication of this document in the **Federal Register**, the EPA will begin pre-registering speakers for the hearing, if a hearing is requested. To register to speak at the virtual hearing, please use the online registration form available at *https://www.epa.gov/stationary-sources-air-pollution/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen* 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 **[INSERT DATE 12 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. 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/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen.*

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 5 minutes to provide oral testimony. The EPA encourages commenters to provide the EPA with a copy of their oral testimony electronically (via email) by emailing it to *smith.korbin@epa.gov.* The EPA also recommends submitting the text of your 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/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen.* While the EPA expects the hearing to go forward as set forth above, please monitor our website 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 **[INSERT DATE 7 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. 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-2020-0505. 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 Regulations.gov.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2020-0505. 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 any information that you consider to be CBI or other information whose disclosure is restricted by statute. This type of information should be submitted by mail as discussed below.

The EPA may publish any comment received to its public docket. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written

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

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

The EPA is temporarily suspending its Docket Center and Reading Room for public visitors, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via *https://www.regulations.gov/* as there may be a delay in processing mail and faxes. Hand deliveries or couriers will be received by scheduled appointment only. For further information and updates on EPA Docket Center services, please visit us online at *https://www.epa.gov/dockets*.

The EPA continues to carefully and continuously monitor information from the CDC, local area health departments, and our Federal partners so that we can respond rapidly as conditions change regarding COVID-19.

Submitting CBI. Do not submit information containing CBI to the EPA through *https://www.regulations.gov/* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, mark the outside of the digital storage media as CBI and then identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in *Instructions* above. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2020-0505. Note that written comments containing CBI and submitted by mail may be delayed and no hand deliveries will be accepted.

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

AEGL	acute exposure guideline level
AERMOD	air dispersion model used by the HEM-3 model
ATSDR	Agency for Toxic Substance and Disease Registry
CAA	Clean Air Act
CalEPA	California EPA

CBI	Confidential Business Information
CCD	combustion control device
CDC	Centers for Disease Control and Prevention
CDX	Central Data Exchange
CEDRI	Compliance and Emissions Data Reporting Interface
CFR	Code of Federal Regulations
EAV	equivalent annual value
EPA	Environmental Protection Agency
ERPG	emergency response planning guideline
ERT	Electronic Reporting Tool
GACT	generally available control technology
HAP	hazardous air pollutant(s)
HCl	hydrochloric acid
HEM-3	Human Exposure Model, Version 1.5.5
HF	hydrogen fluoride
HI	hazard index
HQ	hazard quotient
ICBA	International Carbon Black Association
ICR	Information Collection Request
IRIS	Integrated Risk Information System
km	kilometer
MACT	maximum achievable control technology
mg/m^3	milligrams per cubic meter
MIR	maximum individual risk
MUF	main unit filter
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NATA	National Air Toxics Assessment
NEI	National Emissions Inventory
NESHAP	national emission standards for hazardous air pollutants
NOAEL	no observed adverse effect level
NOCS	Notification of Compliance Status
NSR	New Source Review
OAQPS	Office of Air Quality Planning and Standards
OMB	Office of Management and Budget
PB-HAP	hazardous air pollutants known to be persistent and bio-accumulative in the environment
PDF	portable document format
POM	polycyclic organic matter
ppm	parts per million
PRA	Paperwork Reduction Act
PV	present value

RBLC	Reasonably Available Control Technology, Best Available Control Technology, and Lowest Achievable Emission Rate Clearinghouse
REL	reference exposure level
RfC	reference concentration
RfD	reference dose
RTR	residual risk and technology review
SAB	Science Advisory Board
SV	screening value
SSM	startup, shutdown, and malfunction
TOSHI	target organ-specific hazard index
tpy	tons per year
TRIM.FaTE	Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure model
UF	uncertainty factor
$\mu g/m^3$	microgram per cubic meter
URE	unit risk estimate
USGS	U.S. Geological Survey

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

I. General Information

A. Does this action apply to me?

The source categories that are the subject of this proposal are carbon black production major sources regulated under 40 CFR 63, subpart YY, and carbon black production area sources, regulated under 40 CFR 63 Subpart MMMMMM (6M). The North American Industry Classification System (NAICS) code for the carbon black production industry is 325182. This list of categories and 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.

Federal, state, local, and tribal government entities would not be affected by this proposed action. The Carbon Black Production major source category was added to EPA's source category list June 4,1996 (61 FR 28197). As defined in the *National Emission Standards for Hazardous Air Pollutants; Revision of Initial List of Categories of Sources and Schedule for Standards Under Sections 112(c) and (e) of the Clean Air Act Amendments of 1990,* the Carbon Black Production major source categories are any facility engaged in the manufacture of carbon black using the channel, thermal, or furnace process. (61 FR 28197, June 4, 1996). The Carbon Black Production area source category was added to the EPA's source category list in 2002. (67 FR 70427, November 22, 2002).

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

In addition to being available in the docket, an electronic copy of this action is available on the Internet. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at *https://www.epa.gov/stationary-sources-air-pollution/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen.* Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents at this same website. Information on the overall RTR program is available at *https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html*.

The proposed changes to the CFR that would be necessary to incorporate the changes proposed in this action are set out in an attachment to the memorandum titled *Proposed Regulation Edits for 40 CFR Part 63, Subpart YY*, available in the docket for this action (Docket ID No. EPA-HQ-OAR-2020-0505). The document includes the specific proposed amendatory language for revising the CFR and, for the convenience of interested parties, a redline version of the regulation. Following signature by the EPA Administrator, the EPA will also post a copy of this memorandum and the attachments to *https://www.epa.gov/stationary-sources-air-pollution/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen.*

II. Background

A. What is the statutory authority for this action?

The statutory authority for this action is provided by sections 112 and 301 of the CAA, as amended (42 U.S.C. 7401 *et seq*.). Section 112 of the CAA establishes a two-stage regulatory process to develop standards for emissions of hazardous air pollutants (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 maximum achievable control technology (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, or 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 tons per year (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. 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 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 (D.C. Circuit Court) upheld the EPA's interpretation that CAA section 112(f)(2) incorporates the approach established in the Benzene NESHAP. See *NRDC v. EPA*, 529 F.3d 1077, 1083 (D.C. Cir. 2008).

The approach incorporated into the CAA and used by the EPA to evaluate residual risk and to develop standards under CAA section 112(f)(2) is a two-step approach. In the first step, the EPA determines whether risks are acceptable. This determination "considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR)[1] of approximately 1 in 10 thousand." (54 FR 38045). 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,

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

the EPA considers whether the emissions standards provide an ample margin of safety to protect public health "in consideration of all health information, including the number of persons at risk levels higher than approximately 1 in 1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision." *Id.* The EPA must promulgate emission standards necessary to provide an ample margin of safety to protect public health or determine that the standards being reviewed provide an ample margin of safety without any revisions. After conducting the ample margin of safety analysis, we consider whether a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

CAA section 112(d)(6) separately requires the EPA to review standards promulgated under CAA section 112 and revise them "as necessary (taking into account developments in practices, processes, and control technologies)" no less often than every 8 years. In conducting this review, which we call the "technology review," the EPA is not required to recalculate the MACT floor. *Natural Resources Defense Council (NRDC) v. EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc. v. EPA*, 716 F.3d 667 (D.C. Cir. 2013). The EPA may consider cost in deciding whether to revise the standards pursuant to CAA section 112(d)(6). The EPA is required to address regulatory gaps, such as missing standards for listed air toxics known to be emitted from the source category. *Louisiana Environmental Action Network (LEAN) v. EPA,* 955 F.3d 1088 (D.C. Cir. 2020).

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

The NESHAP for the Carbon Black Production major source category was promulgated on July 12, 2002 (67 FR 46258), and codified at 40 CFR part 63, subpart YY. Additionally, the Carbon Black Production area source NESHAP was promulgated on July 16, 2007 (72 FR 38864), and codified at 40 CFR part 63, subpart MMMMMM. Subpart MMMMMM was subsequently amended by a direct final rule on March 26, 2008 (73 FR 15923). As promulgated, the Carbon Black Production major source and area source NESHAPs apply to affected sources

of HAP at carbon black production facilities that are, respectively, major sources and area sources of HAP. The affected sources covered by subpart YY include each carbon black production process unit, along with associated process vents and equipment that are located at a major source, as defined in section 112(a) of the CAA.

Emissions limits in the 2002 major source NESHAP for the Carbon Black Production source category were set for process vents associated with the main unit filter (MUF). Process vents at the MUF that have a HAP concentration of the emission stream equal to or greater than 260 parts per million by volume (ppmv), must reduce emissions of HAP by the use of a flare meeting the requirements of 40 CFR part 63, subpart SS, or must reduce emissions of total HAP by 98 weight-percent or to a concentration of 20 ppmv, whichever is less stringent, by venting emissions through a closed vent system to any combination of control devices meeting the requirements of subpart SS of this part, as specified in 40 CFR 63.982(a)(2). 40 CFR 63.982(a)(2) specifies separate compliance depending on whether the closed vent system is routed to a flare, or a non-flare control device. These provisions include flare compliance assessments, and specific monitoring, recordkeeping, and reporting requirements. Emission limits for the Carbon Black Production area source category NESHAP reference the provisions of the major source standard.

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

For the residual risk assessment, the EPA utilized data from the 2016 National Emissions Inventory (NEI). The NEI is a database that contains information about sources that emit criteria air pollutants, their precursors, and HAP. The database includes estimates of annual air pollutant emissions from point, nonpoint, and mobile sources in the 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. The EPA collects this information and releases an updated version of the NEI database every 3 years. The NEI contains data necessary for conducting the residual risk assessment, including annual HAP emissions estimates from

individual emission points at facilities in the Carbon Black Production source category, and related emissions release parameters.

The 2016 NEI data for the Carbon Black Production source category was reviewed and updated as appropriate by the International Carbon Black Association (ICBA). Major source members of ICBA represent all major sources subject to this regulation. The information received included descriptions of HAP-emitting processes, information on the HAP-containing materials used, estimates of emissions, and descriptions of control technologies, if present.

The EPA used NEI emissions data and the review by ICBA as the primary technical basis for developing the model input files for the residual risk assessment for the Carbon Black Production source category. Additional information on the development of the modeling file for the Carbon Black Production source category can be found in the document, *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule*, which is available in the docket for this rulemaking.

To support both the residual risk assessment and the technology review addressed in this action, the EPA visited two carbon black production facilities. During the visits, the EPA discussed process operations, compliance with the existing NESHAP, description of the emission points, process controls, unregulated emissions, and other aspects of facility operations. The EPA used the information provided by the facilities to understand the various operations, existing controls, and new developments in practices, processes, and control technologies for the source category. Additional information can be found in the site visit reports, the *Orion Borger Facility Site Visit Report* and the *Sid Richardson Addis Facility Site Visit Report*, which are available in the docket for this action.

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

For the technology review, we reviewed the Reasonably Available Control Technology (RACT), Best Available Control Technology (BACT), and Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC). This is a database that contains case-specific information on air

pollution control technologies that have been required to reduce the emissions of air pollutants from stationary sources. Under the EPA's New Source Review (NSR) program, if a facility is planning new construction or a modification that will increase the air emissions above certain defined thresholds, an NSR permit may be required. The RBLC promotes the sharing of information among permitting agencies and aids in case-by-case BACT and LAER determinations for NSR permits. We examined information contained in the RBLC to determine what technologies are currently used for this source category to reduce air emissions and did not identify any new technologies.

Additional information about these data collection activities for the technology review is contained in the technology review memorandum, *Technology Review for the Carbon Black Production Source Category,* which is available in the docket for this action.

III. Analytical Procedures and Decision-Making

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

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

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

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. The EPA conducts a risk assessment that provides estimates of the MIR posed by 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.[2] 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 the EPA's response to comments on our policy under the 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 Benzene NESHAP explained that "an MIR of approximately one in 10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes an MIR

---

[2] 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.

less than the presumptively acceptable level is unacceptable in the light of other health risk factors." *Id.* at 38045. In other words, risks that include an MIR above 100-in-1 million may be determined to be acceptable, and risks with an MIR below that level may be determined to be unacceptable, depending on all of the available health information. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: "EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category." *Id.* at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in our determinations of acceptability and ample margin of safety.

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

The EPA understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing noncancer risk, where pollutant-specific exposure health reference levels (*e.g.*, reference concentrations (RfCs)) are based on the assumption that thresholds exist for adverse health effects. For example, the EPA recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse noncancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.*, other facilities) to which an individual is exposed may be sufficient to result in an increased risk of adverse noncancer health

effects. In May 2010, the Science Advisory Board (SAB) advised the EPA "that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area."[3]

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

B. How do we perform the technology review?

Our technology review primarily focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. Where we identify such developments, we analyze their

---

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

technical feasibility, estimated costs, energy implications, and non-air environmental impacts. We also consider the emission reductions associated with applying each development. This analysis informs our decision of whether it is "necessary" to revise the emissions standards. In addition, we consider the appropriateness of applying controls to new sources versus retrofitting existing sources. For this exercise, we consider any of the following to be a "development":

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards;
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction;
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards;
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards; and
- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

In addition to reviewing the practices, processes, and control technologies that were considered at the time we originally developed the NESHAP, we review a variety of data sources in our investigation of potential practices, processes, or controls. We also review the NESHAP and the available data to determine if there are any unregulated emissions of HAP within the source category and evaluate this data for use in developing new emission standards. See sections II.C and II.D of this preamble for information on the specific data sources that were reviewed as part of the technology review.

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

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

The EPA conducts a risk assessment that provides estimates of the MIR for cancer posed by the HAP emissions from each source in the source category, the HI for chronic exposures to HAP with the potential to cause noncancer health effects, and the HQ for acute exposures to HAP with the potential to cause noncancer health effects. The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The seven sections that follow this paragraph describe how we estimated emissions and conducted the risk assessment. The docket for this rulemaking contains the following document which provides more information on the risk assessment inputs and models: *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the 2020 Risk and Technology Review Proposed Rule*. The methods used to assess risk (as described in the seven 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;[4] and described in the SAB review report issued in 2010. They are also consistent with the key recommendations contained in that report.

---

[4] 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*

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

The estimated actual emissions and the emission release characteristics for each facility in the source category were obtained from the 2016 NEI. In addition, the EPA provided draft actual emissions data and stack parameters to facilities for review and confirmation. In some cases, facilities were contacted to confirm emissions that appeared to be outliers, otherwise inconsistent with our understanding of the industry, or associated with high risk values in our initial risk screening analyses. Where appropriate, emission values and release characteristics were corrected, based on revised stack parameter information provided by the facilities. Additional information on the development of the modeling file for the source category, including the development of the actual emissions and emissions release characteristics, can be found in the Appendix 1 of the document, *Residual Risk Assessment for Carbon Black Production Source Category in Support of the 2020 Risk and Technology Review Proposed Rule*, which is available in the docket for this action.

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 through 19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP 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

---

Portland Cement Manufacturing, June 2009. EPA-452/R-09-006. *https://www3.epa.gov/airtoxics/rrisk/rtrpg.html*.

explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP approach. (54 FR 38044.)

In order to calculate allowable emissions, a detailed analysis of the source category was conducted to determine how each major source facility meets the emissions standards of the Carbon Black NESHAP. With respect to the various types of controls used within the source category, all facilities use a combination of combustion control devices (CCDs). Facilities that manufacture carbon black typically have several types of CCDs including but not limited to, flares, incinerators, boilers/process heaters, and dryers. CCDs can be used to control emissions for a single emissions source, or as is generally the case, to control emissions from multiple emission sources/emission source types.

Historically, the majority of facilities in this source category utilize flares to control emissions. Emissions reductions for flares in this source category presume to control HAP at a level of 98 percent (*e.g.*, see as an example, Technical Supplement 4: Flares in "2016 Emissions Inventory Guidelines," (TCEQ 2017)). Due to ongoing consent decrees, several facilities are transitioning from flares to incinerators to reduce criteria pollutants. Since the current emission limit allows the use of a flare, or to control emissions to 98 percent, and all facilities utilize a CCD meeting those requirements, it is appropriate to estimate actual emissions as equal to allowable emissions.

For equipment leaks, which are subject to work practice standards, there is no difference between actual and MACT-allowable emissions for facilities in the Carbon Black Production source category. This is because all facilities are using the same work practice standard, and when the work practice standard is correctly applied, the actual emissions that result are the same as allowable emissions. For additional information on the allowable calculations, see *Development of the RTR Proposal Risk Modeling Dataset for the Carbon Black Production Source Category*, available in the docket for this rulemaking.

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

Both long-term and short-term inhalation exposure concentrations and health risk from the source category addressed in this proposal were estimated using the Human Exposure Model (HEM-3).[5] The HEM-3 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) of the modeled sources, and (3) estimating individual and population-level inhalation risk using the exposure estimates and quantitative dose-response information.

a. Dispersion Modeling

The air dispersion model AERMOD, used by the HEM-3 model, is one of the EPA's preferred models for assessing air pollutant concentrations from industrial facilities.[6] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM-3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (2016) of hourly surface and upper air observations from 824 meteorological stations selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block[7] 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

---

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

[6] 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).

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

In developing the risk assessment for chronic exposures, we use the estimated annual average ambient air concentrations of each HAP emitted by each source in the source category. The HAP air concentrations at each nearby census block centroid located within 50 km of the 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 ambient concentration of each HAP (in micrograms per cubic meter ($\mu g/m^3$)) by its unit risk estimate (URE). The URE is an upper-bound estimate of an individual's incremental risk of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use UREs from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) UREs, where available. In cases where new, scientifically credible dose-response values have been developed in a manner consistent with EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate. The pollutant-specific dose-response values used to estimate 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[8] 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

---

[8] The EPA classification system is, in general, an adaptation of the International Agency for Research on Cancer (IARC, 1982) approach for classifying the weight of evidence for human data and animal data. The EPA classification system for the characterization of the overall weight of evidence for carcinogenicity (animal, human, and other supportive data) includes: Group A -- Carcinogenic to Humans; Group B -- Probably Carcinogenic to Humans; Group C -- Possibly Carcinogenic to Humans; Group D -- Not Classifiable as to Human Carcinogenicity; and Group E -- Evidence of Noncarcinogenicity for Humans. These classifications also coincide with the terms, "carcinogenic to humans, probably carcinogenic to humans, and possibly carcinogenic to humans," respectively, which are the terms advocated in the EPA's *Guidelines for Carcinogenic Risk Assessment*, published in 1986 (51 FR 33992, September 24, 1986); *https://nepis.epa.gov/Exe/ZyPDF.cgi/30004TZX.PDF?Dockey=30004TZX.PDF*.

deleterious effects during a lifetime" (*https://iaspub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=IRIS%20Glossary*). In cases where an RfC from the EPA's IRIS is not available or where the EPA determines that using a value other than the RfC is appropriate, the chronic noncancer dose-response value can be a value from the following prioritized sources, which define their dose-response values similarly to the EPA: (1) The Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Level (*https://www.atsdr.cdc.gov/mrls/index.asp*); (2) the CalEPA Chronic Reference Exposure Level (REL) (*https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0*); or (3) as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA. The pollutant-specific dose-response values used to estimate 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,[9] 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 *Residual Risk Assessment for the Carbon Black Production Source*

[9] 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*).

Category in Support of the 2020 Risk and Technology Review Proposed Rule and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment.* 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,[10] reasonable worst-case air dispersion conditions (*i.e.*, 99th percentile), and the point of highest off-site exposure. Specifically, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions co-occur and that a person is present at the point of maximum exposure.

To characterize the potential health risks associated with estimated acute inhalation exposures to a HAP, we generally use multiple acute dose-response values, including acute 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."[11] Acute RELs are based on the most sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological

---

[10] 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 Carbon Black Production Source Category in Support of the 2020 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment*. Both are available in the docket for this rulemaking.

[11] 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*.

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.[12] 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 for emergency planning and are intended as health-based guideline concentrations for single exposures to chemicals."[13] *Id.* at 1. The ERPG–1 is defined as

---

[12] 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*).

[13] *ERPGS Procedures and Responsibilities*. March 2014. American Industrial Hygiene Association.

"the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor." *Id.* at 2. Similarly, the ERPG–2 is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action." *Id.* at 1.

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 this source category, carbon black is produced at a steady state, continuously. Due to the consistency of operation, we do not expect significant variability in emissions for this source category. To allow for small variations in production, we have assigned an hourly acute multiplication factor of two for all emission process groups. A further discussion of why this factor was chosen can be found in the memorandum, *Development of the RTR Proposal Risk Modeling Dataset for the Carbon Black Production Source Category*, 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.

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

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

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

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

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

In the Tier 2 farmer scenario, we maintain an assumption that the farm is located within 0.5 km of the facility and that the farmer consumes meat, eggs, dairy, vegetables, and fruit produced near the facility. We may further refine the Tier 2 screening analysis by assessing a gardener scenario to characterize a range of exposures, with the gardener scenario being more plausible in RTR evaluations. Under the gardener scenario, we assume the gardener consumes

home-produced eggs, vegetables, and fruit products at the same ingestion rate as the farmer. The Tier 2 screen continues to rely on the high-end food intake assumptions that were applied in Tier 1 for local fish (adult female angler at 99th percentile fish consumption[14]) and locally grown or raised foods (90th percentile consumption of locally grown or raised foods for the farmer and gardener scenarios[15]). If PB-HAP emission rates do not result in a Tier 2 SV greater than 1, we consider those PB-HAP emissions to pose risks below a level of concern. If the PB-HAP emission rates for a facility exceed the Tier 2 screening threshold emission rates, we may conduct a Tier 3 screening assessment.

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.[16] Values below the level of the primary (health-based) lead NAAQS are considered to have a low potential for multipathway risk.

---

[14] Burger, J. 2002. *Daily consumption of wild fish and game: Exposures of high end recreationists. International Journal of Environmental Health Research,* 12:343–354.
[15] U.S. EPA. *Exposure Factors Handbook 2011 Edition (Final)*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R–09/052F, 2011.
[16] In doing so, the EPA notes that the legal standard for a primary NAAQS – that a standard is requisite to protect public health and provide an adequate margin of safety (CAA section 109(b)) – differs from the CAA section 112(f) standard (requiring, among other things, that the standard provide an "ample margin of safety to protect public health"). However, the primary lead NAAQS is a reasonable measure of determining risk acceptability (*i.e.*, the first step of the Benzene NESHAP analysis) since it is designed to protect the most susceptible group in the human population – children, including children living near major lead emitting sources. 73 FR

For further information on the multipathway assessment approach, see the *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule*, which is available in the docket for this action.

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

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

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

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

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

---

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.

community-level and population-level endpoints are included. For acid gases, the ecological assessment evaluated is terrestrial plant communities.

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

For further information on how the environmental risk screening assessment was conducted, including a discussion of the risk metrics used, how the environmental HAP were identified, and how the ecological benchmarks were selected, see Appendix 9 of the *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule*, which is available in the docket for this action.

b. Environmental Risk Screening Methodology

For the environmental risk screening assessment, the EPA first determined whether any facilities in the Carbon Black Production source category emitted any of the environmental HAP. For the Carbon Black Production source category, we identified emissions of arsenic, cadmium, lead, mercury, POM and the two acid gasses, hydrochloric and hydrofluoric acid. Because one or more of the environmental HAP evaluated are emitted by at least one facility in the source category, we proceeded to the second step of the evaluation.

c. PB-HAP Methodology

The environmental screening assessment includes six PB-HAP, arsenic compounds, cadmium compounds, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. With the exception of lead, the environmental risk screening

assessment for PB-HAP consists of three tiers. The first tier of the environmental risk screening assessment uses the same health-protective conceptual model that is used for the Tier 1 human health screening assessment. TRIM.FaTE model simulations were used to back-calculate Tier 1 screening threshold emission rates. The screening threshold emission rates represent the emission rate in tons of pollutant per year that results in media concentrations at the facility that equal the relevant ecological benchmark. To assess emissions from each facility in the category, the reported emission rate for each PB-HAP was compared to the Tier 1 screening threshold emission rate for that PB-HAP for each assessment endpoint and effect level. If emissions from a facility do not exceed the Tier 1 screening threshold emission rate, the facility "passes" the screening assessment, and, therefore, is not evaluated further under the screening approach. If emissions from a facility exceed the Tier 1 screening threshold emission rate, we evaluate the facility further in Tier 2.

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

As in the multipathway human health risk assessment, in Tier 3 of the environmental screening assessment, we examine the suitability of the lakes around the facilities to support life and remove those that are not suitable (*e.g.*, lakes that have been filled in or are industrial ponds), adjust emissions for plume-rise, and conduct hour-by-hour time-series assessments. If these Tier 3 adjustments to the screening threshold emission rates still indicate the potential for an adverse

environmental effect (*i.e.*, facility emission rate exceeds the screening threshold emission rate), we may elect to conduct a more refined assessment using more site-specific information. If, after additional refinement, the facility emission rate still exceeds the screening threshold emission rate, the facility may have the potential to cause an adverse environmental effect.

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

d. Acid Gas Environmental Risk Methodology

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

Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule, which is available in the docket for this action.

6. How do we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire "facility," where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emission sources at the facility for which we have data. For this source category, we conducted the facility-wide assessment using a dataset compiled from the 2016 NEI. The source category records of that NEI dataset were removed, evaluated, and updated as described in section II.C of this preamble: What data collection activities were conducted to support this action? Once a quality assured source category dataset was available, it was placed back with the remaining records from the NEI for that facility. The facility-wide file was then used to analyze risks due to the inhalation of HAP that are emitted "facility-wide" for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled source category risks were compared to the facility-wide risks to determine the portion of the facility-wide risks that could be attributed to the source category addressed in this proposal. We also specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule*, available through the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

For this source category, we conducted the facility-wide assessment using a dataset that the EPA compiled from the 2016 NEI with updated emissions and release data provided by

industry. We analyzed risks due to the inhalation of HAP that are emitted "facility-wide" for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, we made a reasonable attempt to identify the source category risks, and these risks were compared to the facility-wide risks to determine the portion of facility-wide risks that could be attributed to the source category addressed in this proposal. We also specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule*, available through the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

7. How do we consider uncertainties in risk assessment?

Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health and environmentally protective. A brief discussion of the uncertainties in the RTR emissions dataset, dispersion modeling, inhalation exposure estimates, and dose-response relationships follows below. Also included are those uncertainties specific to our acute screening assessments, multipathway screening assessments, and our environmental risk screening assessments. A more thorough discussion of these uncertainties is included in the *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule*, which is available in the docket for this action. If a multipathway site-specific assessment was performed for this source category, a full discussion of the uncertainties associated with that assessment can be found in Appendix 11 of that document, *Site-Specific Human Health Multipathway Residual Risk Assessment Report*.

a. Uncertainties in the RTR Emissions Dataset

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

b. Uncertainties in Dispersion Modeling

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

c. Uncertainties in Inhalation Exposure Assessment

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

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and noncancer effects from both chronic and acute exposures. Some uncertainties are generally expressed quantitatively, and others are generally expressed in qualitative terms. We note, as a preface to this discussion, a point on dose-response uncertainty that is stated in the EPA's *2005 Guidelines for Carcinogen Risk Assessment*; namely, that "the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective" (the EPA's *2005 Guidelines for Carcinogen Risk Assessment*, page 1 through 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.[17] 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.[18] Chronic noncancer RfC and reference dose (RfD) values represent chronic exposure levels that are intended to be health-protective levels. To derive dose-response values that are intended to be "without appreciable risk," the methodology relies upon an uncertainty factor (UF) approach,[19] 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.

---

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

[18] 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.

[19] 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.

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

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

e. Uncertainties in Acute Inhalation Screening Assessments

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that the EPA conducts as part of the risk review under section 112 of the CAA. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly 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.[20]

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

---

[20] 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.

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

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

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

IV. Analytical Results and Proposed Decisions

A. What actions are we taking pursuant to CAA sections 112(d)(2) and 112(d)(3)?

In this proposal, pursuant to CAA section 112(d)(2) and (3), the EPA is proposing to broaden the scope of the existing standard, which applies to process vents associated with the MUF, to include all process vents associated with the carbon black production unit. This would require all process vents, including those located after the MUF, to control to 98 percent where

the HAP concentration of the emission stream is equal to or greater than 260 ppmv. Additionally, it would require facilities to conduct performance testing on the additional process vents located after the MUF.

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

As described above, for the Carbon Black Production major source category, we conducted an inhalation risk assessment for all HAP emitted, a multipathway screening assessment for the PB-HAP emitted, and an environmental risk screening assessment for the PB-HAP and acid gasses emitted from the source category. We present results of the risk assessment briefly below and in more detail in the *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule*, which is available in the docket for this action.

1. Chronic Inhalation Risk Assessment Results

The EPA estimated the inhalation risk for the Carbon Black Production major source category based on actual and allowable emissions. The estimated baseline maximum individual lifetime cancer risk (MIR) from inhalation posed by the source category is less than 1-in-1 million based on actual emissions and MACT-allowable emissions. The total estimated cancer incidence based on actual or allowable emission levels is 0.00004 excess cancer cases per year, or one case every 25,000 years. No one is exposed to cancer risk greater than or equal to 1-in-1 million based upon actual and allowable emissions (see Table 1 of this preamble).

The maximum chronic noncancer TOSHI value for the source category was estimated to be less than 1 (0.06) based on actual and allowable emissions. For both actual and allowable emissions, neurological risks were driven by hydrogen cyanide emissions from process filters and fugitive emissions.

TABLE 1: INHALATION RISK ASSESSMENT SUMMARY FOR CARBON BLACK PRODUCTION [1] SOURCE CATEGORY (40 CFR PART 63, SUBPART YY)

Risk Assessment	Number of Facilities[2]	Maximum Individual Cancer	Estimated Population at	Estimated Annual Cancer	Maximum Chronic	Maximum Screening Acute

		Risk (1-in-1 million)[3]	Increased Risk of Cancer ≥ 1-in-1 Million	Incidence (cases per yr)	Noncancer TOSHI[4]	Noncancer HQ[5]
Baseline Actual Emissions						
Source Category	15	0.06	0	0.00004	< 1 (neurological)	0.09 (REL)
Facility-Wide	15	0.06	0	0.00004	< 1 (neurological)	-
Baseline Allowable Emissions						
Source Category	15	0.06	0	0.00004	< 1 (neurological)	-

[1] Based on actual and allowable emissions.
[2] Number of facilities evaluated in the risk assessment. Includes 15 operating facilities subject to 40 CFR part 63, subpart YY.
[3] Maximum individual excess lifetime cancer risk due to HAP emissions from the source category.
[4] Maximum TOSHI. The target organ with the highest TOSHI for the Carbon Black Production source category is the neurological system.
[5] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. The acute HQ shown was based upon the lowest acute 1-hour dose-response value, the REL for hydrogen cyanide. When an HQ exceeds 1, we also show the HQ using the next lowest available acute dose-response value.

2. Screening Level Acute Inhalation Risk Assessment Results

Based on our screening analysis of reasonable worst-case acute exposure to actual emissions from the source category, no HAP exposures result in an acute noncancer HQ greater than 0.09 based upon the 1-hour REL. As discussed in section III.C.3.c of this preamble, we used an acute hourly multiplier of 2 for all emission processes.

3. Multipathway Risk Screening Results

PB-HAP emissions were reported from 14 of the 15 facilities in the source category with seven facilities exceeding the Tier 1 screening threshold emission rates for the carcinogenic PB-HAP, arsenic and POM. Emissions from two facilities exceeded the Tier 1 screening threshold emission rates for mercury and cadmium, which are PB-HAP with noncancer health effects. For

the PB-HAP and facilities with Tier 1 SVs greater than 1, we conducted a Tier 2 screening analysis.

Two facilities exceeded the arsenic and POM Tier 2 cancer SV with a maximum value of 9 for the farmer scenario. One facility exceeded the cadmium Tier 2 noncancer SV with a maximum value of 2. Two facilities exceeded the mercury Tier 2 noncancer SV under the fisher scenario, with a maximum value of 4. When we evaluated the effect multiple facilities within the source category could have on common lake(s) in the modeling domain, mercury and cadmium emissions exceeded the noncancer SVs with a maximum value of 4 and 2, respectively.

For cadmium and mercury, we continued the fisher scenario screening analysis with a Tier 3 multipathway screen which comprises three individual stages. These stages included lake, plume rise, and time-series assessments. A Tier 3 lake assessment was conducted for the two facilities with Tier 2 noncancer SVs greater than 1. After conducting the lake analysis screen, only one facility was above a noncancer SV of 1, with a Tier 3 noncancer SV of 2 for mercury, including consideration of cumulative lake impacts from facilities within the source category.

Further details on the Tier 3 screening analysis can be found in Appendix 11 of *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule."*

An SV in any of the tiers is not an estimate of the cancer risk or a noncancer HQ (or HI). Rather, an SV represents a high-end estimate of what the risk or HQ may be. For example, facility emissions resulting in an SV of 2 for a non-carcinogen can be interpreted to mean that we are confident that the HQ would be lower than 2. Similarly, facility emissions resulting in a cancer SV of 20 for a carcinogen means that we are confident that the cancer risk is lower than 20-in-1 million. Our confidence comes from the health-protective assumptions that are incorporated into the screens: we choose inputs from the upper end of the range of possible values for the influential parameters used in the screens and we assume food consumption behaviors that would lead to high total exposure. This risk assessment estimates the maximum

hazard for mercury and cadmium through fish consumption based on upper bound screens and the maximum excess cancer risks from POM and arsenic through ingestion of fish and farm produce.

When we progress from the model designs of the Tier 1, 2, and 3 screens to a site-specific assessment, we refine the risk assessment through incorporation of additional site-specific data and enhanced model designs. Site-specific refinements include the following: (1) Improved spatial locations identifying the boundaries of the watershed and lakes within the watershed as it relates to surrounding facilities within the source category; (2) calculating actual soil/water run-off amounts to target lakes based upon actual soil type(s) and elevation changes associated with the affected watershed versus assuming a worst-case assumption of 100-percent run-off to target lakes; and (3) incorporating AERMOD deposition of pollutants into TRIM.FaTE to accurately account for site-specific release parameters such as stack heights and exit gas temperatures, versus using TRIM.FaTE's simple dispersion algorithms that assume the pollutant is uniformly distributed within the airshed. These refinements have the net effect of improved modeling of the mass of HAP entering a lake by more accurately defining the watershed/lake boundaries as well as the dispersion of HAP into the atmosphere to better reflect deposition contours across all target watersheds and lakes in our 50-km model domain.

As discussed above, the maximum mercury Tier 3 noncancer SV based upon the lake analysis resulted in a maximum value of 2. The EPA determined that it is not necessary to go beyond the Tier 3 lake analysis or conduct a site-specific assessment. As explained above, the SV of 2 is a high-end estimate of what the risk or hazard may be and can be interpreted to mean that we are confident that the HQ would be lower than 2. Further, risk results from five site-specific mercury assessments the EPA has conducted for five RTR source categories resulted in noncancer HQs that range from 50 times to 800 times lower than the respective Tier 2 SV for these facilities (refer to EPA Docket ID No. EPA-HQ-OAR-2017-0015 for a copy of these

reports).[21] Based on our review of these analyses, we would expect at least a one order of magnitude decrease in all Tier 2 noncancer SVs for mercury for the Carbon Black Production source category, if we were to perform a site-specific assessment. In addition, based upon 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 HI for ingestion exposure, specifically mercury through fish ingestion, is less than 1. Further details on the Tier 3 screening assessment can be found in Appendix 11 of *Residual Risk Assessment for the Carbon Black Production Source Category in Support of the Risk and Technology Review 2020 Proposed Rule.*

In evaluating the potential for adverse health effects from emissions of lead, the EPA compared modeled annual lead concentrations around each facility to the secondary NAAQS level for lead (0.15 μg/m^3, arithmetic mean concentration over a 3-month period. The highest annual average lead concentration, of 0.000099 μg/m^3, is below the NAAQS level for lead, indicating a low potential for multipathway impacts.

4. Environmental Risk Screening Results

As described in section III.A of this preamble, we conducted an environmental risk screening assessment for the Carbon Black Production source category for the following pollutants: arsenic, cadmium, HCL, hydrofluoric acid, lead, mercury (methyl mercury and mercuric chloride), and POMs.

---

[21] 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*; and 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-2019-0373):* Appendix 11 of the *Residual Risk Assessment for the Iron and Steel Foundries Source Category in Support of the Risk and Technology Review 2019 Proposed Rule.*

In the Tier 1 screening analysis for PB-HAP (other than lead, which was evaluated differently), cadmium, methyl mercury, and divalent mercury resulted in exceedances of ecological benchmarks for two facilities. Cadmium emissions had Tier 1 exceedances for the following benchmarks: surface soil no observed adverse effect levels (NOAELs) for mammalian insectivores and avian ground insectivores, and fish (avian piscivores) NOAEL, geometric-maximum-allowable-toxicant-level, and lowest observed adverse effect level benchmarks with a maximum SV of 6. Divalent mercury emissions had Tier 1 exceedances for the following benchmarks: surface soil threshold level - plant communities, surface soil threshold level - invertebrate communities with a maximum SV of 10. Methyl mercury emissions had Tier 1 exceedances for the following benchmarks: NOAEL – mammalian insectivores and surface soil NOAEL for avian ground insectivores with a maximum SV of 10.

A Tier 2 screening analysis was performed for cadmium, divalent mercury, and methyl mercury emissions. In the Tier 2 screening analysis, there were no exceedances of any of the ecological benchmarks evaluated for cadmium, divalent mercury, and methyl mercury.

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

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

5. Facility-Wide Risk Results

As shown in Table 1, the facility-wide risks are the same as the risks for actual emissions and allowable emissions from units subject to the NESHAP for the Carbon Black Production major source category, with no change in incidence or risk drivers.

6. What demographic groups might benefit from this regulation?

To examine the potential for any environmental justice issues that might be associated with the source category, we performed a demographic analysis, which is an assessment of risks to individual demographic groups of the populations living within 5 km and within 50 km of the facilities. In the analysis, we evaluated the distribution of HAP-related cancer and noncancer risks from the Carbon Black Production source category across different demographic groups within the populations living near facilities.[22]

Results of the demographic analysis indicate that, for four of the 11 demographic groups, African American, age greater than or equal to 65, age greater than or equal to 25 years of age without a high school diploma, and people below the poverty level reside within 5 km of facilities in the source category at a percentage greater than the corresponding national percentage for the same demographic groups. When examining the risk levels of those exposed to emissions from carbon black production facilities, we find that no one is exposed to a cancer risk at or above 1-in-1 million or to a chronic noncancer TOSHI greater than 1.

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

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

1. Risk Acceptability

As explained in section II.A of this preamble, the EPA sets standards under CAA section 112(f)(2) using "a two-step standard-setting approach, with an analytical first step to determine

[22] Demographic groups included in the analysis are: White, African American, Native American, other races and multiracial, Hispanic or Latino, children 17 years of age and under, adults 18 to 64 years of age, adults 65 years of age and over, adults without a high school diploma, people living below the poverty level, people living two times the poverty level, and linguistically isolated people.

an 'acceptable risk' that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR of approximately 1-in-10 thousand" (54 FR 38045, September 14, 1989). The EPA weighed all health risk measures and information, including risk estimation uncertainties, in determining whether risk posed by HAP emissions from the source category is acceptable.

The maximum individual lifetime cancer risk (MIR) for inhalation exposure to actual and allowable emissions from the Carbon Black Production source category (< 1-in-1 million) is two orders of magnitude below 100-in-1 million, which is the presumptive upper limit of acceptable risk. The EPA estimates emissions from the category would result in a cancer incidence of 0.00004 excess cancer cases per year, or one case every 25,000 years. Inhalation exposures to HAP associated with chronic noncancer health effects result in a TOSHI of 0.06 based on actual emissions, 25 times below an exposure that the EPA has determined is without appreciable risk of adverse health effects. An exposure analysis of HAP with acute noncancer health effects demonstrated that the risks are below a level of concern with a max HQ equal to 0.09 based upon the 1-hour REL.

Maximum cancer risk due to ingestion exposures estimated using health-protective risk screening assumptions are below 10-in-1 million for the Tier 2 farmer exposure scenario. Tier 3 screening analyses of mercury exposure due to fish ingestion determined that the maximum HQ for mercury would be less than 2 as explained in section III.C.4 of this preamble. The EPA is confident that this hazard estimate would be reduced to a HQ less than 1, if further refined to incorporate enhanced site-specific analyses such as improved model boundary identification with improved soil/water run-off calculations and AERMOD deposition outputs used in the TRIM.FaTE model. Considering all of the health risk information and factors discussed above, as well as the uncertainties discussed in section III of this preamble, we propose that the risks posed by HAP emissions from the Black Carbon Production source category are acceptable.

2. Ample Margin of Safety Analysis

As directed by CAA section 112(f)(2), we conducted an analysis to determine whether the current emissions standards provide an ample margin of safety to protect public health. In light of the cancer risk being below 1-in-1 million and the noncancer chronic and acute risks being below established levels of concern as well as the low potential for multipathway risks, we propose to conclude that the existing standards provide an ample margin of safety to protect public health.

3. Adverse Environmental Effect

The emissions data for the Carbon Black Production source category indicate that the following environmental HAP are emitted by this category: arsenic, cadmium, HCl, hydrofluoric acid, lead, mercury (methyl mercury and mercuric chloride), and POMs. The screening-level evaluation of the potential for adverse environmental effects associated with emissions of these environmental HAP from the Carbon Black Production source category indicated that there are no exceedances of Tier 2 screening values for PB-HAP, no exceedances of the average modeled concentration around each facility (*i.e.,* the average concentration of all off-site data points in the modeling domain) for acid gases, and, for lead, we did not estimate any exceedances of the secondary lead NAAQS. In addition, we are unaware of any adverse environmental effects caused by HAP emitted by this source category. Therefore, we do not expect there to be an adverse environmental effect as a result of HAP emissions from this source category and we are proposing that it is not necessary to set a more stringent standard to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

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

1. Major Source Technology Review

As described in section III.B of this preamble, the technology review focused on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. In conducting the technology

review, we reviewed various informational sources regarding the emissions from the Carbon Black Production major source category. The review included a search of the RBLC database, reviews of air permits for carbon black production facilities, and meetings with industry and the trade association (summarized in the docket for this action). We reviewed these data sources for information on practices, processes, and control technologies that were not considered during the development of the Carbon Black Production NESHAP. We also looked for information on improvements in practices, processes, and control technologies that have occurred since the development of the Carbon Black Production NESHAP for major sources.

After reviewing information from the aforementioned sources, we did not identify any developments in practices, processes, or control technologies used at carbon black production facilities since promulgation of the MACT standard.

Based on the technology review, we are proposing that it is not necessary to revise the existing standards because we did not identify developments in practices, processes, or control technologies. Additional information on our technology review can be found in the memorandum, *Technology Review for Carbon Black Production Source Category*, which is available in the docket for this action.

2. Area Source Technology Review

We performed a technology review of the Carbon Black Production area source NESHAP. As part of that review, we determined that there are no area sources in this source category currently in operation. Given this and the overlap in the requirements for major and area sources, we are concluding that it is not necessary to make changes to the existing area source standards as a result of this review. For more information on the determination that there are no sources subject to the area source standard see the memorandum, *Identification of Area Sources for the Carbon Black Production NESHAP*, available in the docket for this action.

E. What other actions are we proposing?

In addition to the proposed actions described above, we are proposing four other revisions to the NESHAP. We are proposing revisions to the SSM-related provisions of the MACT rule in order to ensure that they are consistent with the decision in *Sierra Club v. EPA*, 551 F. 3d 1019 (D.C. Cir. 2008), in which the court vacated two provisions that exempted sources from the requirement to comply with otherwise applicable CAA section 112(d) emission standards during periods of SSM. We are also proposing to require electronic reporting and annual tune-up requirements for applicable process heaters/boilers. Lastly, we are proposing that owners and operators of carbon black production process vents subject to the rule conduct performance tests every 5 years to demonstrate continued compliance with the NESHAP. A discussion of these proposed changes follows.

1. SSM

a. Proposed Elimination of the SSM Exemption

In its 2008 decision in *Sierra Club v. EPA,* 551 F.3d 1019 (D.C. Cir. 2008), the D.C. Circuit Court vacated portions of two regulatory provisions governing the emissions of HAP during periods of SSM, which were promulgated pursuant to CAA section 112. Specifically, the court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some CAA section 112 standards apply continuously. Consistent with the court's decision in *Sierra Club v. EPA*, we are proposing standards in this rule that apply at all times. We are also proposing several revisions to cross-references of SSM exemptions in 40 CFR part 63, subpart SS. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption as further described below.

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

We are proposing the elimination of the SSM exemption, which currently appears at 40 CFR 63.1108, and any reference to SSM requirements in 40 CFR part 63, subpart YY that apply to carbon black production affected sources. For example, we are proposing to eliminate the incorporation of the requirement that the source develop an SSM plan. Additionally, we are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption. The EPA is also proposing several similar SSM-related revisions to 40 CFR part 63, subpart YY to remove SSM-related referenced provisions of 40 CFR part 63, subpart SS (National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process). These revisions are discussed in greater detail below (see sections IV.E.1.b through j of this preamble).

In proposing the standards in this rule, the EPA has taken into consideration the impacts of the SSM exemption as it relates to startup and shutdown periods and is proposing a 13-minute startup work practice standard. This added provision is required for safety purposes in the absence of the SSM exemption and is discussed further below (see section IV.E.1.i of this preamble).

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead, they are, by definition, sudden, infrequent, and not reasonably preventable failures of emissions control, process or monitoring equipment. (40 CFR 63.2) (containing regulatory 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. The EPA's interpretation has been upheld as reasonable. See *United States Sugar Corp. v. EPA*, 830 F.3d 579, 606–10 (D.C. Cir. 2016). Under CAA section 112, emissions standards for new sources must be no less stringent than the level "achieved" by the best controlled similar source and for existing sources generally must be no less stringent than the average emission limitation "achieved" by the best performing 12 percent of sources in the

category. There is nothing in CAA section 112 that directs the Agency to consider malfunctions in determining the level "achieved" by the best performing sources when setting emission standards. See*, e.g.*, *National Ass'n of Clean Water Agencies v. EP*A, 734 F.3d 1115, 1141 (D.C. Cir. 2013) (noting that "average emissions limitation achieved by the best performing 12 percent of" sources "says nothing about how the performance of the best units is to be calculated"). While the EPA accounts for variability in setting emissions standards, nothing in CAA section 112 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in a "normal or usual manner" and no statutory language compels the EPA to consider such events in setting CAA section 112 standards.

As the D.C. Circuit Court recognized in *United States Sugar Corp v. EPA*, accounting for malfunctions in setting standards would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree, and duration of various malfunctions that might occur. See *United States Sugar Corp.*, 830 F.3d at 608 (discussing work practice standards and explaining that "the EPA would have to conceive of a standard that could apply equally to the wide range of possible boiler malfunctions, ranging from an explosion to minor mechanical defects. Any possible standard is likely to be hopelessly generic to govern such a wide array of circumstances."). As such, the performance of units that are malfunctioning is not "reasonably" foreseeable. See*, e.g.*, *Sierra Club v. EPA*, 167 F.3d 658, 662 (D.C. Cir. 1999) ("The EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to 'invest the resources to conduct the perfect study.'"). See also *Weyerhaeuser v. Costle*, 590 F.2d 1011, 1058 (D.C. Cir. 1978) ("In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset

situations. After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation."). In addition, emissions during a malfunction event can be significantly higher than emissions at any other time of source operation. For example, if an air pollution control device with 99-percent pollutant removal goes off-line as a result of a malfunction (as might happen if, for example, the bags in a baghouse catch fire) and the emission unit is a steady state type unit that would take days to shut down, the source would go from 99-percent control to zero control until the control device was repaired. The source's emissions during the malfunction would be 100 times higher than during normal operations. As such, the emissions over a 4-day malfunction period would exceed the annual emissions of the source during normal operations. As this example illustrates, accounting for malfunctions could lead to standards that are not reflective of, and significantly less stringent than, levels that are achieved by a well-performing non-malfunctioning source. It is reasonable to interpret CAA section 112 in a way as to avoid such a result. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

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

In the unlikely event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, sudden, infrequent, not reasonably preventable, and was not instead caused, in part, by poor maintenance or careless operation. 40 CFR 63.2 (definition of malfunction).

If the EPA determines in a particular case that an enforcement action against a source for violation of an emission standard is warranted, the source can raise any and all defenses in that enforcement action and the federal district court will determine what, if any, relief is appropriate. The same is true for citizen enforcement actions. Similarly, the presiding officer in an administrative proceeding can consider any defense raised and determine whether administrative penalties are appropriate.

In summary, the EPA interpretation of the CAA and, in particular, CAA section 112, is reasonable and encourages practices that will avoid malfunctions. Administrative and judicial procedures for addressing exceedances of the standards fully recognize that violations may occur despite good faith efforts to comply and can accommodate those situations. *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 606-610 (2016).

b. Proposed Revisions to 40 CFR Part 63, Subpart YY (and Referenced 40 CFR Part 63, Subpart SS)

The EPA assessed existing applicable provisions that apply to carbon black production affected sources under 40 CFR part 63, subpart YY (including references to 40 CFR part 63, subpart SS), and we are proposing to eliminate the applicability of provisions that are no longer appropriate, unnecessary, or redundant in the absence of the SSM exemption. The revisions to 40

CFR part 63, subpart YY are discussed in sections IV.E.1.c through i of this section. The revisions to 40 CFR part 63, subpart YY related specifically to references to 40 CFR part 63, subpart SS are discussed in section IV.E.1.j of this preamble.

c. General Duty

Section 63.1108(a)(5) states that the emission standards of 40 CFR part 63, subpart YY (including the Carbon Black MACT standards) do not apply during periods of SSM. However, the paragraph maintains that owners and operators still have a general duty to implement measures to prevent or minimize excess emissions and that the measures to be taken to minimize excess emissions during these times shall be identified in the SSM plan (if applicable).

Similarly, 40 CFR 63.1111(a)(2) states that, during "periods of startup, shutdown, and malfunction, the owner or operator of an affected source subject to this subpart YY shall operate and maintain such affected source (including associated air pollution control equipment and [continuous parament monitoring systems] (CPMS)) in a manner consistent with safety and good air pollution control practices for minimizing emissions to the extent practical. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved."

The current language in 40 CFR 63.1108(a)(5) and 40 CFR 63.1111(a)(2) characterizes the general duty to minimize emissions during periods of SSM. With the elimination of the SSM exemption, there is no longer a need to maintain the general duty language of 40 CFR 63.1108(a)(5) and 63.1111(a)(2) as owners and operators would be required to comply with the Carbon Black emission standards at all times (including during periods of SSM). Therefore, the EPA is proposing to remove the applicability of requirements at 40 CFR 63.1108(a)(5) (as

specified in the proposed 40 CFR 63.1108(a) introductory text revisions) and 40 CFR 63.1111(a)(2) (as specified in the proposed 40 CFR 63.1111(a) introductory text revisions).

d. SSM Plan

We are proposing to remove the applicability of requirements at 40 CFR 63.1111(a) (as specified in the proposed 40 CFR 63.1111(a) introductory text revisions) requiring owners and operators to develop an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As noted, the EPA is proposing to remove the applicability of the SSM exemptions. Therefore, affected units will be subject to emission standards 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.

e. Compliance with Standards

We are proposing to remove the applicability of the provisions of 40 CFR 63.1108(a)(1) and (2) (as specified in the proposed 40 CFR 63.1108(a) introductory text revisions) which exempts sources from standards during periods of SSM. As discussed above, the D.C. Circuit Court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club*, the EPA is proposing to revise standards in this rule to apply at all times.

f. Performance Testing

The proposal does not include the language that precludes startup and shutdown periods from being considered "representative" for purposes of performance testing, and instead allows performance testing during periods of startup or shutdown if specified by the Administrator. As in 40 CFR 63.997(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 also proposing to add the applicability of the requirements at 40 CFR 63.1108(b)(4)(ii)(B) (as specified in the proposed 40 CFR

63.1108(b)(4)(ii)(B) revisions) that require the owner and operator maintain records of 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. Finally, the EPA is proposing to add the applicability of language clarifying that the owner and operator make such records available to the Administrator upon request (as specified in the proposed 40 CFR 63.1108(b)(4)(ii)(B) revisions).

g. Recordkeeping

We are not proposing to change the language at 40 CFR 63.1109(a) requiring owners and operators of each affected source to keep copies of reports. However, we are proposing to completely remove the applicability of the requirements at 40 CFR 63.1111(b) (as specified in the proposed 40 CFR 63.1111(b) introductory text revisions), which eliminates periodic SSM reports, consequently eliminating the requirement to keep a copy of this report. These requirements are no longer appropriate for startup and shutdown because SSM plans will no longer be required and the EPA is proposing that recordkeeping and reporting applicable to normal operations will apply to startup and shutdown. In the absence of special provisions applicable to startup and shutdown, such as a startup and shutdown plan, there is no reason to retain additional recordkeeping for startup and shutdown periods. Furthermore, in lieu of the requirements applicable to malfunctions in 40 CFR 63.1111(b), we are proposing the applicability of the recordkeeping requirements at 40 CFR 63.1111(c)(1). The regulatory text we are proposing to apply at 40 CFR 63.1111(c)(1)(i) differs from 40 CFR 63.1111(b) in that 40 CFR 63.1111(b) requires the creation and retention of a record for each malfunction during which excess emissions occurred, including total duration of all malfunctions for a reporting period. The EPA is proposing that this requirement apply to any failure to meet an applicable standard and is requiring that the source record the date, time, and duration of the failure rather than the total duration of all malfunctions with which excess emissions occurred. For each failure to meet an applicable standard, the EPA is also proposing to revise the rule to include the

applicability of the requirements at 40 CFR 63.1111(c)(1)(ii) (as specified in the proposed 40 CFR 63.1111(c) introductory text revisions). This provision requires that sources keep records that include a list of the affected source or equipment, an estimate of the quantity of each regulated pollutant emitted over the standard for which the source failed to meet the standard, and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. Furthermore, the EPA is proposing to add the applicability of the requirements at 40 CFR 63.1111(c)(1)(iii) (as specified in the proposed 40 CFR 63.1111(c) introductory text revisions) requiring sources keep records of any corrective actions taken to return the affected unit to its normal or usual manner of operations, and actions taken to minimize emissions in accordance with the general duty regulatory text at 40 CFR 63.1108(a)(4)(ii). The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

h. Reporting

We are proposing to remove the applicability of the requirements at 40 CFR 63.1111(b) (as specified in the proposed 40 CFR 63.1111(b) introductory text revisions) which describes the reporting requirements for SSM. When applicable, 40 CFR 63.1111(b)(1) requires sources to report actions taken during SSM events to show that actions taken were consistent with their SSM plan. When applicable, 40 CFR 63.1111(b)(2) requires sources to report actions taken during SSM events when actions were inconsistent with their SSM plan. The proposed amendments, therefore, eliminate the applicability of the requirements at 40 CFR 63.1111(b)(2) that require reporting of whether the source deviated from its SSM plan, including required actions to communicate with the Administrator, and the cross-reference to 40 CFR 63.1111(b)(1)

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. We are proposing to remove the applicability of the requirements at 40 CFR 63.1111(b)(2) for reasons discussed above and because 40 CFR 63.1111(b)(2) 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 and operators to report when actions taken during SSM were not consistent with an SSM plan, because plans would no longer be required.

i. Proposed 13-Minute Startup Control Device Bypass Provision

In order to address safety concerns related to the elimination of applicability of the SSM-related provisions when demonstrating compliance with standards under the Carbon Black Production NESHAP, we are proposing that the provisions specified in 40 CFR 63.983(a)(1) of subpart SS, that each closed vent system shall be designed and operated to collect the regulated material vapors from the emission point shall apply at all times, unless complying with the 13-minute startup control device bypass provision. In accordance with the requirements of CAA section 112(h), we are proposing a work practice standard to apply as follows: During periods of startup, when the percent excess oxygen of the collected vapor is greater than or equal to 3 percent, the closed vent system to the control device may be bypassed for the period when the excess oxygen concentration is greater than or equal to 3 percent or for 13 minutes, whichever time is shorter. At all other times, the use of a bypass line on a closed vent system to divert emissions subject to the requirements in Table 8 to 40 CFR 63.1103(f) to the atmosphere or to a control device not meeting the requirements specified in Table 8 of this subpart is an emissions standards violation.

We are proposing this work practice standard because it is not feasible to enforce or prescribe an emission standard during startup. Due to the combustible nature of the tail gas

contained in the ductwork and primary bag filter at carbon black facilities, a CCD cannot be safely operated until the contents of the ductwork and primary bag filter are below 3-percent excess oxygen. If a CCD is used while the excess oxygen content is 3 percent or above, this could lead to an explosion at the facility.

After further discussions with the ICBA, we determined that the 13-minute allotment to bypass the CCD, corresponds with the minimum time necessary to completely purge the ductwork and primary bag filter of the facility representing the lowest production rate. A lower production rate results in a lower flow rate through the ductwork, leading to a longer period of time to completely purge the ductwork and primary bag filter. Some facilities that operate using a higher production rate, will be able to purge the line in less than the 13-minute allotment. To address this variability, we are proposing to require that once facilities are under 3-percent excess oxygen content, they must start controlling emissions to meet the applicable emission limit. This requirement minimizes emissions from higher production rate facilities, that can properly purge the ductwork and primary bag filter in less than the 13-minute period.

In order to further reduce emissions during the 13-minute startup work practice period, we are proposing to require that facilities operate using the minimum load for standard starting operating procedures. This requirement will reduce the amount of new HAP being generated during the 13-minute startup period, by limiting the quantity of tail gas being produced, thus, reducing the amount of HAP being released.

All facilities in this source category bypass the combustion control device until the excess oxygen concentration drops below 3-percent and use the minimum load for standard starting operating procedures during startup, therefore, this practice represents the best performers and represents the MACT floor. We did not identify additional measures to reduce emissions during this period, and, therefore, are proposing a standard based on the MACT floor. Based on conversations with industry, there are no other provisions that would need to be proposed as a result of the elimination of the SSM-related provisions being proposed with this action. For

additional information on the proposed work practice requirement during periods of startup, see the file, *SSM Email correspondence with ICBA*, available in the docket for this action.

j. 40 CFR Part 63, Subpart SS Revisions

In keeping with the elimination of the SSM exemption, we are also proposing in the Carbon Black Production MACT standards at 40 CFR 63.1103(f)(4) to remove the applicability of SSM-related exemption provisions from 40 CFR part 63, subpart SS referenced by the Carbon Black Production MACT standards under 40 CFR part 63, subpart YY, similar to the revisions to 40 CFR part 63, subpart YY discussed under sections IV.1.E.c through h of this preamble. SSM-exemption related language being proposed for removal includes specific compliance SSM-related provisions/language such as "except during periods of start-up, shutdown and malfunction specified in a referencing subpart"; "other than periods of startups, shutdowns, and malfunctions"; language requiring that an SSM plan be prepared and followed; language referencing operations during periods of SSM not constituting representative conditions for the purpose of a performance test; language allowing the exclusion of SSM data when determining compliance with a standard; excursion language related to SSM periods; and SSM-related record requirements.

2. Electronic Reporting

The EPA is proposing that owners and operators of carbon black production facilities submit electronic copies of required performance test reports, Notification of Compliance Status (NOCS), and periodic reports through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the electronic data submission process is provided in the memorandum, *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, available in the docket for this action.

The proposed rule requires that performance test results collected using test methods that are supported by the EPA's Electronic Reporting Tool (ERT) as listed on the ERT website[23] 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. The proposed rule requires that NOCS reports be submitted as a PDF upload in CEDRI.

For periodic reports, the proposed rule requires that owners and operators use the appropriate spreadsheet template to submit information to CEDRI. A draft version of the proposed template for these reports is included in the docket for this action.[24] The EPA specifically requests comment on the content, layout, and overall design of the template.

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. These circumstances are (1) outages of the EPA's CDX or CEDRI which preclude an owner and 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 and 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 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.

---

[23] *https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert*.
[24] See *Proposal Form 5900-484 Carbon Black Periodic Report,* available at Docket ID No. EPA-HQ-OAR-2020-0505.

The electronic submittal of the reports addressed in this proposed rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the 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[25] to implement Executive Order 13563 and is in keeping with the EPA's Agency-wide policy[26] developed in response to the White House's Digital Government Strategy.[27] For more information on the benefits of electronic reporting, see the memorandum, *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, referenced earlier in this section.

3. Boiler and Process Heater Provisions

As a result of the EPA's assessment of the MACT standards that currently apply to the Carbon Black Production source category under 40 CFR part 63, subpart YY, the EPA was made aware that there may be instances where carbon black production process vents at affected sources, route emissions to a boiler/process heater for use as fuel gas may not be subject to any

---

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

[26] *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*.

[27] *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*.

requirements. Under the existing standards, although emission streams may be subject to the Carbon Black Production MACT, these streams are exempt from any requirements under the rule when emissions are routed to a boiler/process heater for use as fuel gas. The EPA assumed that these boilers/process heaters would be subject to the 40 CFR Part 63, subpart DDDDD, Industrial, Commercial, and Institutional Boilers and Process Heaters NESHAP (Boiler MACT). However, under the Boiler MACT, process heaters/boilers covered under another standard (as with the Carbon Black Production MACT) would not be subject to the Boiler MACT. Specifically, boilers that are used as control devices for other NESHAP standards, where at least 50 percent of the heat input to the boiler is provided by the NESHAP-regulated gas stream would not be subject to the Boiler MACT. This was an unintended consequence of the Carbon Black Production MACT rule. We are, therefore, proposing that applicable boilers/process heaters that receive tail gas for use as fuel gas must comply with annual tune up requirements specified in 40 CFR 63.1103(f)(3)(iii). The proposed annual boiler/process heater tune-up requirements are similar to what is included for gas 1 units under the Boiler MACT.

4. Performance Test Frequency.

The EPA is proposing to revise the MACT standard compliance provisions for the Carbon Black Production source category to require owners and operators of carbon black production affected source process vents subject to the rule conduct performance tests every 5 years. The EPA has determined that an initial performance test is insufficient to demonstrate continued compliance over time. Thus, this proposed revision is necessary to ensure continued compliance with standards.

F. What compliance dates are we proposing?

Amendments to the Carbon Black Production standards proposed in this rulemaking for adoption under CAA section 112(d)(2) and (3) and CAA section 112(d)(6) are subject to the compliance deadlines outlined in the CAA under CAA section 112(i). New sources, (*i.e.*, sources that commence construction or reconstruction after proposal of the standard) must comply with

the standard immediately upon start-up. Existing sources, as described in CAA section 112(i) provides that the compliance date shall provide for compliance as expeditiously 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 . . . *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 by affected sources. The final action is not expected to be a "major rule" as defined by 5 U.S.C. 804(2), so the effective date of the final rule will be the promulgation date as specified in CAA section 112(d)(10).

The EPA is proposing several changes that would impact new and ongoing compliance requirements for carbon black production affected sources under 40 CFR part 63, subpart YY. These changes include: (1) Process vent emission standards being expanded to cover all applicable (based on an applicability threshold) carbon black production process vents; (2) the requirement to conduct performance tests every 5 years when demonstrating compliance with process vent emission control requirements; (3) boiler and process heater tune up requirements; (4) several SSM-related changes (changes proposed as a result of removing the applicability of the SSM exemption from the requirements); (5) the alternative work practice standard specified in 40 CFR 63.1103(f)(5) related to the requirement that a closed vent system route the collected vapors to a control device when demonstrating compliance, and (6) the addition of requirements to submit reports electronically. The compliance applicability dates vary for listed items one through three, and four and five.

The EPA is proposing that, if applicable, all carbon black production affected sources that commenced construction or reconstruction on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, must be in compliance with the: (1) Process vent emission standards being expanded to cover all applicable (based on an

applicability threshold) carbon black production process vents; (2) the requirement to conduct performance tests every 5 years when demonstrating compliance with process vent emission control requirements; and (3) boiler and process heater tune up requirements by 1 year after the date the final rule is published in the *Federal Register*. The 1-year allowance for existing sources to comply with the rule is based on the EPA's assessment that owners and operators will need time to plan, determine applicability of process vent requirements, and implement performance testing and control requirements (which could include equipment/retrofit investments to comply with new requirements). The EPA is also proposing that, if applicable, all carbon black production affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, must be in compliance with the: (1) Process vent emission standards being expanded to cover all applicable (based on an applicability threshold) carbon black production process vents; (2) the requirement to conduct performance tests every 5 years when demonstrating compliance with process vent emission control requirements; and (3) boiler and process heater tune up requirements upon initial startup, or the date of publication of the final rule in the *Federal Register,* whichever is later.

For other proposed requirements related to SSM-related changes and electronic reporting, the EPA is proposing that all carbon black production affected sources that commenced construction or reconstruction on or before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, must be in compliance with the: (1) SSM-related changes (changes proposed as a result of removing the SSM exemption from the requirements); (2) the alternative work practice standard specified in 40 CFR 63.1103(f)(5) related to the requirement that a closed vent system route the collected vapors to a control device when demonstrating compliance; and (3) the addition of requirements to submit reports electronically 180 days after publication of the final rule in the *Federal Register*. All carbon black production affected sources that commenced construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, must be in compliance with the: (1) SSM-related changes; (2) the

alternative work practice standard specified in 40 CFR 63.1103(f)(5) related to the requirement that a closed vent system route the collected vapors to a control device when demonstrating compliance; and (3) the addition of requirements to submit reports electronically upon initial startup, or the date of publication of the final rule in the *Federal Register*, whichever is later. Based on our assessment, for existing sources, the EPA considers a period of 180 days to be the most expeditious compliance period practicable for complying with SSM-related and electronic reporting requirement change planning and implementation.

For SSM-related requirement changes, we believe 180 days is sufficient for owners and operators of affected sources to familiarize themselves with the operational, monitoring, reporting, and recordkeeping changes associated with the SSM-related requirement changes. Additionally, 180 days is sufficient for owners and operators of affected sources to comply with the alternative work practice standard that addresses safety concerns as a result of removing the applicability of SSM-related provisions when demonstrating compliance with standards under the Carbon Black Production NESHAP.[28]

We are also proposing to change the applicability of requirements for SSM by removing the applicability of the exemption from the requirements to meet the standard during SSM periods and by removing the requirement to develop and implement an SSM plan. Our experience with similar industries that are required to convert reporting mechanisms to install necessary hardware and software, become familiar with the process of submitting performance test results electronically through the EPA's CEDRI, test these new electronic submission capabilities, and reliably employ electronic reporting shows that a time period of a minimum of 90 days, and, more typically, 180 days is generally necessary to successfully accomplish these revisions. Our experience with similar industries further shows that owners and operators

[28] Section 63.983(a)(1) of 40 CFR part 63, subpart SS requires that each closed vent system be designed and operated to collect the regulated material vapors from the emission point, and to route the collected vapors to a control device, apply at all times.

generally require a time period of 180 days 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; and to update their operation, maintenance, and monitoring plan to reflect the revised requirements.

For electronic reporting changes, the EPA's experience with similar industries that are required to convert reporting mechanisms, to install necessary hardware and software, become familiar with the process of submitting performance test results electronically through the EPA's CEDRI, test these new electronic submission capabilities, and reliably employ electronic reporting shows that a time period of a minimum of 90 days, and, more typically, 180 days, is generally necessary to successfully accomplish these revisions. Our experience with similar industries further shows that this sort of regulated facility generally requires a time period of 180 days 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; and to update their operation, maintenance, and monitoring plan to reflect the revised requirements.

We solicit comment on the proposed compliance periods. Specifically, we request that comments in support of, and in opposition to, the proposed compliance periods for the differing requirements provide supporting information as to why or why not the compliance periods proposed are sufficient/insufficient.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected sources?

The EPA estimates that there are 15 production facilities in the Carbon Black Production major source category that will be subject to the Carbon Black Production NESHAP affected by the proposed amendments to 40 CFR part 63, subpart YY. The basis of our estimates of affected facilities is provided in the memorandum, *Identification of Major Sources for the Carbon Black*

Production NESHAP, which is available in the docket for this action. We are not currently aware of any planned or potential new or reconstructed carbon black production facilities in the source category.

B. What are the air quality impacts?

While we are broadening the scope of the current standard, setting annual tune up requirements for process heaters/boilers, removing the SSM exemption, and establishing a work practice standard for periods of startup, we do not have data to determine quantitatively the reduction in HAP emissions resulting from this action. Nevertheless, we do not anticipate that this action will result in significant HAP emission reductions.

C. What are the cost impacts?

Costs were developed on a per facility basis, and all facilities were determined to have similar costs. Costs were valued in 2019 dollars. Costs were broken into three separate categories based on proposed requirements: Initial Applicability Test, Performance Test, and Boiler/Process Heater Maintenance Costs.

Initial applicability testing costs include costs associated with the proposed requirement that process vents located after the MUF meet the standard, which will require facilities to determine whether emissions control is needed for process vents after the MUF process vent. We estimate this to be a one-time cost of $21, 350 per facility, due to the assumption that the majority of HAP is removed and controlled at the MUF, which results in the vent stream concentration located after the MUF to fall below the HAP applicability concentration threshold (260 ppmv).

Performance test costs include costs associated with the proposed requirement to conduct emissions tests at the subject process vents every 5 years starting in the first year of the proposed requirement. We estimate that 20 percent of subject facilities will conduct a performance test each year resulting in an annual cost of $15,241 per facility.

Boiler/process heater maintenance costs include costs associated with the proposed requirement to ensure that boilers and process heaters are operating at peak efficiency and not creating excess emissions through inefficient operation. Initial tune-up costs are assumed to be higher to get the units back to peak efficiency. We assume that following year costs would be lower because less maintenance would be needed. As such, we estimate the initial tune-up cost to be $6,750 per facility and subsequent annual tune-ups to cost $1,350 per facility.

Costs were based primarily on labor, equipment, and travel costs. Labor costs are based on Bureau of Labor Statistics data for relevant employees necessary to perform the tests and maintenance. A detailed cost analysis can be found in the memorandum, *Carbon Black Cost Memorandum,* available in the docket for this action.

D. What are the economic impacts?

Economic impact analyses focus on changes in market prices and output levels. If changes in market prices and output levels in the primary markets are significant enough, impacts on other markets may also be examined. Both the magnitude of costs associated with the proposed requirements and the distribution of these costs among affected facilities can have a role in determining how the market will change in response to a proposed rule.

Economic costs to carbon black producers were measured in Present Value (PV) total costs and Equivalent Annual Value (EAV) costs. All producer facilities were estimated to have similar costs. All costs are presented in 2019 dollars. Refer to the memorandum, *Carbon Black Economic Impact Analysis,* in the docket for this rulemaking for more information. PV total costs and EAV costs were measured at the 3-percent and 7-percent discount rate. The duration of analysis was 10 years which represented two full cycles of cost analysis for the proposed requirements. Per facility PV total costs were estimated to be $70,000 and $63,000 at the 3-percent and 7-percent discount rates, respectively. EAV costs per facility were estimated to be $8,000 and $9,000 at the 3-percent and 7-percent discount rates, respectively. The combined PV total cost of the proposed requirements for all facilities was estimated to be $1,005,000 and

$945,000 at the 3-percent and 7-percent discount rates, respectively. The combined EAV cost of the proposed requirements for all facilities was estimated to be $118,000 and $135,000 at the 3-percent and 7-percent discount rates, respectively.

All carbon black producers subject to this rule were determined to be large entities based on Small Business Administration standards. Because the PV and EAV costs associated with the proposed revisions are minimal, no significant economic impacts from the proposed amendments are anticipated. Refer to the *Carbon Black Economic Impact Memorandum,* available in the docket, for more information.

E. What are the benefits?

Although the EPA does not anticipate any significant reductions in HAP emissions as a result of the proposed amendments, we believe that the action, if finalized as proposed, would result in improvements to the rule, by broadening the current emission limit, requiring an annual tune-up for boilers/process heaters, and revising the SSM standards such that a standard applies at all times, including periods covered by the proposed work practice standard. Additionally, the proposed amendments requiring electronic submittal of NOCS reports, performance test results, and periodic reports will increase the usefulness of the data, are in keeping with current trends of data availability, will further assist in the protection of public health and the environment, and will ultimately result in reduced reporting burden on the regulated community. See section IV.D.3 of this preamble for more information.

VI. Request for Comments

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

representativeness of the data or information. Section VII of this preamble provides more information on submitting data.

VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available for download on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen.* The data files include detailed information for each HAP emissions release point for the facilities in the source category.

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

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

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

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

4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID No. EPA-HQ-OAR-2020-0505 (through the method described in the **ADDRESSES** section of this preamble).

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

updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the project website at *https://www.epa.gov/stationary-sources-air-pollution/acetal-resins-acrylic-modacrylic-fibers-carbon-black-hydrogen.*

VIII. Statutory and Executive Order Reviews

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

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

This action is not a significant regulatory action and was, therefore, not submitted to OMB for review.

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

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

C. Paperwork Reduction Act (PRA)

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The Information Collection Request (ICR) document that the EPA prepared has been assigned EPA ICR number 2677.01. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

We are proposing changes to the recordkeeping and reporting requirements associated with 40 CFR part 63, subpart YY, in the form of eliminating the SSM plan and reporting requirements; broadening the initial emission limit to include process vents located after the MUF; and including the requirement for electronic submittal of reports. In addition, the number of facilities subject to the standards changed. The number of respondents was reduced from 18 to 15 based on consultation with industry representatives and state/local agencies.

Respondents/affected entities: The respondents to the recordkeeping and reporting requirements are owners and operators of carbon black production facilities subject to 40 CFR part 63, subpart YY.

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

Estimated number of respondents: 15 facilities.

Frequency of response: The frequency of responses varies depending on the burden item. Responses include one-time review of rule amendments, reports of periodic performance tests, and semiannual compliance reports.

Total estimated burden: The annual recordkeeping and reporting burden for responding facilities to comply with all of the requirements in the NESHAP, averaged over the 3 years of this ICR, is estimated to be 289 hours (per year). The average annual burden to the Agency over the 3 years after the amendments are final is estimated to be 213 hours (per year) for the Agency. Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: The annual recordkeeping and reporting cost for responding facilities to comply with all of the requirements in the NESHAP, averaged over the 3 years of this ICR, is estimated to be $180,928 (rounded, per year). There are no estimated capital and operation and maintenance costs. The total average annual Agency cost over the first 3 years after the amendments are final is estimated to be $10,247.

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 dockets identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to *OIRA_submission@omb.eop.gov*, Attention: Desk Officer for the EPA. Since OMB is required

to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The EPA will respond to any ICR-related comments in the final rule.

D. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities, since there are no small entities in the source category.

E. Unfunded Mandates Reform Act (UMRA)

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

F. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

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

This action does not have tribal implications as specified in Executive Order 13175. No tribal facilities are known to be engaged in the Carbon Black Production source category and would not be affected by this action. Thus, Executive Order 13175 does not apply to this action.

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

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to

children. This action's health and risk assessments are contained in sections III.A and IV.A and B of this preamble.

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

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

J. National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

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

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

The documentation for this decision is contained in sections IV.A, IV.B, IV.F, and IV.G of this preamble. As discussed in sections IV.A, IV.B, IV.F, and IV.G of this preamble, we performed a demographic analysis for each source category, which is an assessment of risks to individual demographic groups, of the population close to the facilities (within 50 km and within 5 km). In our analysis, we evaluated the distribution of HAP-related cancer risks and noncancer hazards from the Carbon Black Production source category across different social, demographic, and economic groups within the populations living near operations identified as having the highest risks.

Results of the demographic analysis performed for the Carbon Black Production source category indicate that, for four of the 11 demographic groups, African American, people age 65 and up, people living below the poverty level, and adults over 25 without a high school diploma that reside within 5 km of facilities in the source category is greater than the corresponding national percentage for the same demographic groups. When examining the risk levels of those

exposed to emissions from carbon black production facilities, we find nobody is exposed to a cancer risk at or above 1-in-1 million and nobody is exposed to a chronic noncancer TOSHI greater than 1. For additional information see the memorandum, *Risk and Technology Review - Analysis of Demographic Factors For Populations Living Near Carbon Black Production Source Category Operations,* available in the docket for this action.

List of Subjects in 40 CFR Part 63

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

Andrew Wheeler,

Administrator.

[FR Doc. 2021-00233 Filed: 1/13/2021 8:45 am; Publication Date: 1/14/2021]