6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2019-0373; FRL-]

RIN 2060-AT30

National Emission Standards for Hazardous Air Pollutants: Iron and Steel Foundries Residual Risk and Technology Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rules.

SUMMARY: This action presents the proposed results of the U.S. Environmental Protection Agency's (EPA's) residual risk and technology review (RTR) required under the Clean Air Act (CAA) for the National Emission Standards for Hazardous Air Pollutants (NESHAP) for major source Iron and Steel Foundries, initially promulgated in 2004 and amended in 2008. Pursuant to the CAA, this action also presents the proposed results of the technology review for the NESHAP for area source Iron and Steel Foundries, initially promulgated in 2008. In this proposed action, the EPA is also proposing to remove exemptions for periods of startup, shutdown, and malfunction (SSM) and specify that the emissions standards apply at all times; require electronic reporting of performance test results and compliance reports; and make minor corrections and clarifications for a few other rule provisions for major sources and area sources. Implementation of these proposed rules is not expected to result in significant changes to the emissions from iron and steel foundries, human health, or environmental impacts associated with

those emissions. However, this action, if finalized, would result in improved monitoring, compliance, and implementation of the existing standards.

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 hearing. Additional information about the hearing, if requested, will be published in a subsequent **Federal Register** document and posted at *https://www.epa.gov/stationary-sources-air-pollution/iron-and-steel-foundries-national-emissions-standards-hazardous-air* and *https://www.epa.gov/stationary-sources-air-pollution/iron-and-steel-foundries-national-emission-standards-hazardous-air*. 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-2019-0373, 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-2019-0373 in the subject line of the message.
- Fax: (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2019-0373.

- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2019-0373, Mail Code 28221T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

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

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

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Phil Mulrine, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5289; fax number: (919) 541-4991; and email address: *mulrine.phil@epa.gov*. For specific information regarding the risk modeling methodology, contact Ted Palma, 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) 541-5470; fax number: (919) 541-0840; and email address: *palma.ted@epa.gov*. For questions about monitoring and testing requirements, contact Kevin McGinn, Sector Policies and Programs Division (D230-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-3796; fax number: (919)

541-4991; and email address: *mcginn.kevin@epa.gov*. For information about the applicability of the NESHAP to a particular entity, contact Maria Malave, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, WJC South Building (Mail Code 2227A), 1200 Pennsylvania Avenue, NW, Washington DC 20460; telephone number: (202) 564-7027; and email address: *malave.maria@epa.gov*.

SUPPLEMENTARY INFORMATION:

Public hearing. Please contact Adrian Gates at (919) 541-4860 or by email at *gates.adrian@epa.gov* to request a public hearing, to register to speak at the public hearing, or to inquire as to whether a public hearing will be held.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2019-0373. All documents in the docket are listed in Regulations.gov. Although listed, some information is not publicly available, *e.g.*, Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically in Regulations.gov or in hard copy at the EPA Docket Center, Room 3334, WJC West Building, 1301 Constitution Avenue, NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2019-0373. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *https://www.regulations.gov/*, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *https://www.regulations.gov/* or email. This type of information should be submitted by mail as discussed below.

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

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

Submitting CBI. Do not submit information containing CBI to the EPA through *https://www.regulations.gov/* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, mark the outside of the digital storage media as CBI and then identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in *Instructions* above. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2019-0373.

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
CAA	Clean Air Act
CalEPA	California EPA
CBI	Confidential Business Information

CFR	Code of Federal Regulations
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
IRIS	Integrated Risk Information System
km	kilometer
MACT	maximum achievable control technology
mg/m^3	milligrams per cubic meter
MIR	maximum individual risk
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
NSR	New Source Review
NTTAA	National Technology Transfer and Advancement Act
OAQPS	Office of Air Quality Planning and Standards
OECA	Office of Enforcement and Compliance Assurance
OMB	Office of Management and Budget
PAH	polycyclic aromatic hydrocarbons
PB-HAP	hazardous air pollutants known to be persistent and bio-accumulative in the environment
PCS	pouring, cooling, and shakeout
PM	particulate matter
POM	polycyclic organic matter
ppm	parts per million
ppmv	parts per million by volume
RBLC	Reasonably Available Control Technology, Best Available Control Technology, and Lowest Achievable Emission Rate Clearinghouse
REL	reference exposure level
RFA	Regulatory Flexibility Act
RfC	reference concentration

RfD	reference dose
RTR	residual risk and technology review
SAB	Science Advisory Board
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
UMRA	Unfunded Mandates Reform Act
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?

Table 1 of this preamble lists the NESHAP and associated regulated industrial source categories that are the subject of this proposal. Table 1 is not intended to be exhaustive, but rather provides a guide for readers regarding the entities that this proposed action is likely to affect. The proposed standards, once promulgated, will be directly applicable to the affected sources. Federal, state, local, and tribal government entities would not be affected by this proposed action. As defined in the *Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990* (see 57 FR 31576, July 16, 1992) and *Documentation for Developing the Initial Source Category List, Final Report* (*see* EPA-450/3-91-030, July 1992), the major source Iron Foundries and Steel Foundries were initially listed as two separately defined source categories. However, in the proposed and final NESHAP for major sources (in 2002 and 2004, respectively), the two source categories were combined into one major source category known as the Iron and Steel Foundries major source category. A single NESHAP (40 CFR part 63, subpart EEEEE) was developed to regulate both iron and steel major source foundries because of the similarities in the processes and because many ferrous foundries produce both iron and steel castings. Subsequently, on June 26, 2002, the EPA added Iron Foundries area sources and Steel Foundries area sources as two separate area source categories to the source category list, and the EPA established one area source NESHAP (40 CFR part 63, subpart ZZZZZ) that applies to the two area source categories. This proposed action addresses the major source NESHAP that applies to the major source Iron Foundries and the major source Steel Foundries and this action also addresses the area source NESHAP that applies to the Iron Foundries area source category and the Steel Foundries area source category. An iron and steel foundry is any facility engaged in the production of final shape ferrous castings from the melting of scrap, ingot, and/or other forms of iron and/or steel and pouring the molten metal into molds. Iron and steel foundries include the following four main process operations: raw materials handling and preparation, metal melting, mold and core production, and casting and finishing.

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

Source Category	NESHAP	NAICS Code[1]
Iron and Steel Foundries	40 CFR part 63 subpart EEEEE 40 CFR part 63 subpart ZZZZZ	331511 331512 331513

[1] North American Industry Classification System.

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

In addition to being available in the docket, an electronic copy of this action is available on the Internet. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at *https://www.epa.gov/stationary-sources-air-pollution/iron-and-steel-foundries-national-emissions-standards-hazardous-air* and *https://www.epa.gov/stationary-sources-air-pollution/iron-and-steel-foundries-national-emission-standards-hazardous-air*. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents at these same websites. Information on the overall RTR program is available at *https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html*.

A redline version of the regulatory language that incorporates the proposed changes is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2019-0373).

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 to determine if there are "developments in practices, processes, or control technologies" that may be appropriate to incorporate into the standards. This review is commonly referred to as the "technology review." When the two reviews are combined into a single rulemaking, it is commonly referred to as the "risk and technology review." The discussion that follows identifies the most relevant statutory sections and briefly explains the contours of the methodology used to implement these statutory requirements. A more comprehensive discussion appears in the document titled *CAA Section 112 Risk and Technology Reviews: Statutory Authority and Methodology,* in the docket for this rulemaking.

In the first stage of the CAA section 112 standard setting process, the EPA promulgates technology-based standards under CAA section 112(d) for categories of sources identified as emitting one or more of the HAP listed in CAA section 112(b). Sources of HAP emissions are either major sources or area sources, and CAA section 112 establishes different requirements for major source standards and area source standards. “Major sources” are those that emit or have the potential to emit 10 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.” The EPA must also consider control options that are more stringent than the floor. Standards more stringent than the floor are commonly referred to as beyond-the-floor standards. In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards where it is not feasible to prescribe or enforce a numerical emission standard. For area sources, CAA section 112(d)(5) gives the EPA discretion to set standards based on generally available control technologies or management practices (GACT standards) in lieu of MACT standards.

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

The approach incorporated into the CAA and used by the EPA to evaluate residual risk and to develop standards under CAA section 112(f)(2) is a two-step approach. In the first step, the EPA determines whether risks are acceptable. This determination "considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR)[1] of approximately 1 in 10 thousand." 54 FR 38045, September 14, 1989. If risks are unacceptable, the EPA must determine the emissions standards necessary to reduce risk to an acceptable level without considering costs. In the second step of the approach, the EPA considers whether the emissions standards provide an ample

[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.

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).

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

Iron and steel foundries manufacture metal castings by melting iron and/or steel in a furnace, pouring the molten iron or steel into a mold of a desired shape, allowing the casting to cool (solidify) in the mold, removing the casting from the mold, and finishing (grinding and cleaning) the final cast product. The primary processing units of interest at iron and steel foundries, because of their potential to generate HAP emissions, are the following: metal melting furnaces; mold and core making lines; pouring, cooling, and shakeout (PCS) lines; and, if present, scrap preheaters. Melting furnaces primarily emit metal HAP. The three types of metal melting furnaces are cupolas (a blast-type furnace), electric arc furnaces, and electric induction furnaces. Mold and core making and PCS lines primarily emit organic HAP. Molds, which define the outer shape of the castings, are primarily made of sand, clay, and water (referred to as "green sand") with small amounts of coke added to maintain a reducing atmosphere and prevent oxidation of the metal while it is cooling. Cores, which are used to create internal void spaces in the casting, generally require more mechanical strength than molds and consist of sand mixed with a chemical binder to create a hard, durable form for the internal shapes. Depending on the size and shape of the casting, chemical binders may also be used in the mold sand to increase the strength of the molds. Many of the binder systems contain organic solvents, some of which may volatilize and be emitted when the binder is mixed with the sand (*i.e.*, mold and core making emissions). When the molten metal is poured in the sand molds, the hot metal causes the coke and/or organic chemical binders in the mold/cores to degrade and pyrolyze, which creates a variety of organic HAP emissions during the cooling and subsequent shakeout process (where the hardened casting is removed from the sand molds).

The EPA promulgated MACT standards for major source iron and steel foundries on April 22, 2004, under 40 CFR part 63, subpart EEEEE (69 FR 21906). The MACT standards established: particulate matter (PM) emission limits (as a surrogate for metal HAP) and alternative metal HAP emission limits for metal melting furnaces; triethylamine emission limits from phenolic urethane cold box mold and core making operations and included work practice standards prohibiting methanol to be used as a specific component of furan (also known as furfuryl alcohol) warm box mold and core making lines; and organic HAP emission limits for new and existing cupola melting furnaces and scrap preheaters and for new automated cooling and shakeout lines. For other ancillary sources at the foundry, such as casting finishing, the MACT standards include a building opacity limit. The MACT standards also instituted scrap selection and inspection requirements to limit the amount of mercury, lead, chlorinated plastics, and free liquids present in the scrap fed to metal melting furnaces. There are approximately 45 major source iron and steel foundries in the United States.

The EPA promulgated GACT standards for area source iron and steel foundries on January 2, 2008, under 40 CFR part 63, subpart ZZZZZ (73 FR 252). The area source standards subcategorized foundries by size. Existing area source foundries with annual metal melt production of 20,000 tons or less and new area source foundries with annual metal melt capacity of 10,000 tons or less are defined as “small” foundries; area source foundries exceeding these metal melt rates are defined as “large” foundries. Small and large area source iron and steel foundries are required to operate according to scrap selection and inspection requirements to limit the amount of mercury, lead, chlorinated plastics, and free liquids present in the scrap fed to metal melting furnaces and to operate furan warm box mold and core making lines without the use of methanol as a component of the catalyst formulation. The GACT standards for large iron and steel foundries also include PM emission limits (as a surrogate for metal HAP) and alternative metal HAP emission limits for metal melting furnaces and include building opacity limits for other ancillary sources at the foundry. The GACT standards for metal melting furnaces at area source foundries are less stringent than the MACT standards for major source foundries and include an allowance to use emissions averaging. We estimate there are approximately 390 area source iron and steel foundries in the United States.

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

For the Iron and Steel Foundries NESHAP RTR, the EPA used emissions and supporting data from the 2014 National Emissions Inventory (NEI) as the primary data to develop the model input files for the residual risk assessments for major source iron and steel foundries. 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 includes data necessary for conducting risk modeling, including annual HAP emissions estimates from individual emission sources at facilities and the related emissions release parameters. In certain cases, we contacted state inventory compilers and facility owners or operators to confirm and clarify the sources of emissions, emissions estimates, and release parameters that were reported in the NEI. Additional information on the development of the modeling file can be found in Appendix 1 to the *Residual Risk Assessment for the Iron and Steel Foundries Major Source Category in Support of the 2019 Risk and Technology Review Proposed Rule,* which is available in the docket for this proposed rule (Docket ID No. EPA-HQ-OAR-2019-0373).

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

For the risk review portion of the RTR, there was no other relevant background information obtained beyond that used to develop the model input file as described above. For the technology review portion of the RTR, we collected information from the Reasonably Available Control Technology, Best Available Control Technology, and Lowest Achievable Emission Rate Clearinghouse (RBLC). This is a database that contains case-specific information on air pollution 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 must be obtained. The RBLC promotes the sharing of information among permitting agencies and aids in case-by-case determinations for NSR permits. We examined information contained in the RBLC to determine what technologies are currently used for these source categories to reduce air emissions. Additional information about these data collection activities for the technology reviews is contained in the technology review memorandum titled *Major and Area Source Technology Review for the Iron and Steel Foundries NESHAP,* which is available in the docket for this proposed rule (Docket ID No. EPA-HQ-OAR-2019-0373).

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. In this proposed action, pursuant to CAA section 112(f), the EPA is conducting a risk review for the major source NESHAP (40 CFR part 63, subpart EEEEE) MACT standards. Consistent with the provision regarding alternative standards for area sources in section CAA 112(d)(5), the risk review does not cover the NESHAP for area sources. Therefore, the discussions of risk assessment methods and modeling analyses described in the following paragraphs only apply to the major source category. However, pursuant to CAA section 112(d)(6), the EPA is proposing the technology review for both major source NESHAP and the area source NESHAP (40 CFR part 63, subpart ZZZZZ). Therefore, the discussions in the paragraphs below regarding how EPA conducted the technology reviews apply to both major sources and area sources.

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

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

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. The EPA conducts a risk assessment that provides estimates of the MIR posed by the HAP emissions from each source in the source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause noncancer health effects, and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause noncancer health effects.[2] The assessment also provides estimates of the distribution of cancer risk within the exposed

[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.

populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The scope of the EPA's risk analysis is consistent with the EPA's response to comments on our policy under the Benzene NESHAP where the EPA explained that:

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

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

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

The EPA understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing noncancer risk, where pollutant-specific exposure health reference levels (*e.g.*, reference concentrations (RfCs)) are based on the assumption that thresholds exist for adverse health effects. For example, the EPA recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse noncancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.*, other facilities) to which an individual is exposed may be sufficient to result in an increased risk of adverse noncancer health effects. In May 2010, the Science Advisory Board (SAB) advised the EPA "that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area."[3]

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

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

B. How do we perform the technology review?

Our technology review focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were

[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*.

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

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

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

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

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

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

SAB in 2009;[4] and described in the SAB review report issued in 2010. They are also consistent with the key recommendations contained in that report.

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

The EPA's initial estimates of actual emissions and the emission release characteristics for each facility in the major source Iron and Steel Foundries source category were based on the 2014 NEI. For this source category, emissions are released from both point and fugitive emissions sources. An example of a point release is furnace emissions that are captured by a control device such as a baghouse and released through a stack. Examples of fugitive releases include uncaptured emissions from mold making or pouring, cooling, and shakeout operations that exit the building through a roof vent or other openings. After compiling the initial emissions estimates from the 2014 NEI, the EPA posted the draft actual emissions estimates and stack parameters on the EPA's website to allow stakeholders an opportunity to review the data and provide corrections, if appropriate. In some cases, state and local inventory compilers and/or facility representatives were contacted to confirm or correct emissions that appeared to be outliers that were otherwise inconsistent with our understanding of the industry, or that were 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 state, local, or facility representative. These revisions were documented and are included in Appendix 1 of the *Residual Risk Assessment for the Iron and Steel Foundries Major Source Category in Support of the 2019 Risk and Technology Review*

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

Proposed Rule, which is available in the docket for this action. Nevertheless, some uncertainties remain in the emissions estimates used in our analysis. The annual emission estimates in the NEI are commonly developed using emission factors (rather than actual measurement data) and applying the maximum throughput or permitted operating hours, and, therefore, in some cases, may be conservative (*i.e.*, more likely to be overestimates versus underestimates of the true actual emissions). When available, actual source test data may be used to develop a facility-specific emission rate. Because source test requirements generally specify testing near maximum capacity, source test data generally represent upper-end emissions rates. These emission rates are then generally applied to the permitted operating hours, resulting in high estimates of the actual annual emissions.

However, there may also be situations where emissions data are highly uncertain, lacking, or underestimated. For example, the 2014 NEI emissions estimates relied on by the EPA for this source category are developed largely by state or local agencies and different states or local agencies may use different methods to estimate the HAP emissions. We know there are times that state or local agencies used specific emissions factors or emissions estimation procedures to account for some uncaptured fugitive emissions at facilities. These emission estimates are quite uncertain because it is difficult to measure or estimate uncaptured fugitive emissions. On the other hand, there may be situations where uncaptured fugitive emissions were not estimated such that these emissions may have been underreported in the 2014 NEI emission inventory. The EPA requests comments on the adequacy of the 2014 NEI or other available information for estimating uncaptured fugitive emissions from foundry operations. Additional information on the development of the model input file for the major source category, including the development of the actual emissions and emissions release characteristics, can be found in

Appendix 1 to the *Residual Risk Assessment for Iron and Steel Foundries Major Source Category in Support of the 2019 Risk and Technology Review Proposed Rul*e document, which is available in the docket for this proposed rule (Docket ID No. EPA-HQ-OAR-2019-0373).

2. How did we estimate MACT-allowable emissions?

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

As discussed in the prior section, the EPA understands, based on conversations with state and local inventory developers, that the emission estimates reported to the NEI are generally the maximum permitted emissions. Although actual source test data may be used, when available, to develop a facility-specific emission factor or emissions rate, the NEI emissions estimates are commonly developed using default emission factors and the maximum capacity of the plant or maximum permitted operating hours for the source. Therefore, we think the NEI emissions for the Iron and Steel Foundries source category are likely to be more closely representative of allowable emissions than actual emissions.

Additionally, for many of the sources, there are two potential emission limits in the NESHAP that the facility may comply with. For example, there are two alternative emission limits for metal melting furnaces: one based on PM and one based on metal HAP. Similarly, most of the organic HAP limits include both a percent reduction standard and a concentration standard. Given the emission limit alternatives available in the Iron and Steel Foundries NESHAP, it is difficult to assess or "back-calculate" the allowable emissions based on the data reported in the NEI. Because the NEI emissions for this source category generally reflect the maximum permitted emissions, and because we could not identify a reasonable alternative approach for developing allowable emission estimates, we assumed the MACT-allowable emissions were equal to the estimated actual emissions (as reported to the 2014 NEI along with the corrections described above). For more information, see *Estimating Allowable and Acute Emission Rates for Major Source Iron and Steel Foundries* document, which is available in the docket for this proposed rule (Docket ID No. EPA-HQ-OAR-2019-0373).

We acknowledge that the EPA generally estimates allowable emissions for RTRs by assuming facilities emit each HAP at the level that would be allowed by the numerical emissions limits in the NESHAP and assuming production rates remain at historic typical production levels. However, we did not use this approach for this proposed RTR because of the complexities of the Iron and Steel Foundries NESHAP (described above) and because we had insufficient data to determine appropriate scale-up factors for each of the HAP. Therefore, we used the approach described above to derive estimates of allowable emissions for this proposed rule. We solicit comments regarding our assumptions, data, and approach to derive allowable emissions estimates and whether a different method or approach should be used to calculate allowable emissions.

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 major 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

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.

populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant-specific dose-response values is used to estimate health risk. These are discussed below.

b. Risk from Chronic Exposure to HAP

In developing the risk assessment for chronic exposures, we use the estimated annual average ambient air concentrations of each HAP emitted by each source in the major 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, September 14, 1989) and the limitations of Gaussian dispersion models, including AERMOD.

For each facility, we calculate the MIR as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week, 52 weeks per year, 70 years) exposure to the maximum concentration at the centroid of each inhabited census block. We calculate individual cancer risk by multiplying the estimated lifetime exposure to the ambient concentration of each HAP (in micrograms per cubic meter ($\mu g/m^3$)) by its 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.

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

To assess the risk of noncancer health effects from chronic exposure to HAP, we calculate either an HQ or a target organ-specific hazard index (TOSHI). We calculate an HQ when a single noncancer HAP is emitted. Where more than one noncancer HAP is emitted, we sum the HQ for each of the HAP that affects a common target organ or target organ system to obtain a TOSHI. The HQ is the estimated exposure divided by the chronic noncancer dose-response value, which is a value selected from one of several sources. The preferred chronic noncancer dose-response value is the EPA RfC, defined as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime" (*https://iaspub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=IRIS%20Glossary*). In cases where an RfC from the EPA's IRIS is not available or where the EPA determines that using a value other than the RfC is appropriate, the chronic noncancer dose-response value can be a value from the following prioritized sources, which define their dose-response values similarly to the EPA: (1) the Agency for Toxic Substances and Disease Registry (ATSDR) 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. In this proposed rulemaking, as part of our efforts to continually improve our methodologies to evaluate the risks that HAP emitted from categories of industrial sources pose to human health and the environment,[9] we are revising our treatment of meteorological data to use reasonable worst-case air dispersion conditions in our acute risk screening assessments instead of worst-case air dispersion conditions. This revised treatment of meteorological data and the supporting rationale are described in more detail in *Residual Risk Assessment for Iron and Steel Foundries Major Source Category in Support of the 2019 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment.* We will be applying this revision in RTR rulemakings proposed on or after June 3, 2019.

To assess the potential acute risk to the maximally exposed individual, we use the peak hourly emission rate for each emission point,[10] reasonable worst-case air dispersion conditions (*i.e.*, 99^{th} 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.

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[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*).
[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 the Iron and Steel Foundries Major Source Category in Support of the 2019 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment*. Both are available in the docket for this rulemaking.

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 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

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[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*.

[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*).

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 "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

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

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 the Iron and Steel Foundries major source category, we estimated the peak hourly emission rate for each emission point based on the estimates of annual actual emissions described above (*e.g.,* 2014 NEI annual emissions estimates) and knowledge of the foundry processes. For foundry emissions sources that operate during the majority of the foundry operating hours, *e.g.*, melting furnaces and pouring, cooling, and shakeout line operations, an emission adjustment factor of 4 was used to estimate a maximum hourly emissions rate from the annual average actual emissions estimates. For sources that have periodic emission releases, like tapping and inoculation, we applied the default factor of 10 because hourly emissions during these periodic operations are not quantifiable but can be significantly higher than the annual average emissions from these sources. These acute factors were applied based on the reported NEI source characterization code for each emission point. For more information, see Appendix 2 of the *Residual Risk Assessment for the Iron and Steel Foundries Major Source Category in Support of the 2019 Risk and Technology Review Proposed Rule,* which is available in the docket for this proposed rule (Docket ID No. EPA-HQ-OAR-2019-0373). Appendix 2 is titled *Estimating Allowable and Acute Emission Rates for Major Source Iron and Steel Foundries*.

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 site-specific data to ensure that the acute HQ is at an off-site location. For this source category, the data refinements employed are discussed more fully in the *Residual Risk Assessment for the Iron and Steel Foundries Major Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this source category.

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

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

For the Iron and Steel Foundries major source category, we identified PB-HAP emissions of polycyclic organic matter (POM) (of which polycyclic aromatic hydrocarbons (PAH) is a subset), lead compounds, mercury compounds, cadmium compounds, and arsenic compounds so we proceeded to the next step of the evaluation. Except for lead, the human health risk screening assessment for PB-HAP consists of three progressive tiers.

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

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

In the Tier 2 screening assessment, the location of each facility that exceeds a Tier 1 screening threshold emission rate is used to refine the assumptions associated with the Tier 1 fisher and farmer exposure scenarios at that facility. A key assumption in the Tier 1 screening assessment is that a lake and/or farm is located near the facility. As part of the Tier 2 screening assessment, we use a U.S. Geological Survey (USGS) database to identify actual waterbodies within 50 km 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

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[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.

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 screening value greater than 1, we consider those PB-HAP emissions to pose risks below a level of concern. If the PB-HAP emission rates for a facility exceed the Tier 2 screening threshold emission rates, we may conduct a Tier 3 screening assessment.

There are several analyses that can be included in a Tier 3 screening assessment, depending upon the extent of refinement warranted, including validating that the impacted 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.

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[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 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.

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

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

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

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

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

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

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

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

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

For further information on how the environmental risk screening assessment was conducted, including a discussion of the risk metrics used, how the environmental HAP were identified, and how the ecological benchmarks were selected, see Appendix 9 of the *Residual Risk Assessment for the Iron and Steel Foundries Major Source Category in Support of the Risk and Technology Review 2019 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 Iron and Steel Foundries major source category emitted any of the environmental HAP. For the Iron and Steel Foundries major source category, we identified emissions of arsenic, cadmium, HCl, HF, lead, mercury (methyl mercury and mercuric chloride), and POM. 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 CAA section 112(a)(7) of the CAA) from emissions of HF and HCl, we evaluate the following metrics: the size of the modeled area around each facility that exceeds the ecological benchmark for each acid gas, in acres and km^2; the percentage of the modeled area around each facility that exceeds the ecological benchmark for each acid gas; and the area-weighted average screening value around each facility (calculated by dividing the area-weighted average concentration over the 50-km modeling domain by the ecological benchmark for each acid gas). For further information on the environmental screening assessment approach, see Appendix 9 of the *Residual Risk Assessment for the Iron and Steel Foundries Major Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, which is available in the docket for this action.

7. How do we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire "facility," where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emission sources at the facility for which we have data.

For this source category, we conducted the facility-wide assessment using a dataset that the EPA compiled from the 2014 NEI. We used the NEI data for the facility and did not adjust any category or "non-category" data. Therefore, there could be differences in the dataset from that used for the source category assessments described in this preamble. 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 Iron and Steel Foundries Major Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available through the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

8. How do we consider uncertainties in risk assessment?

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

a. Uncertainties in the RTR Emissions Dataset

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

b. Uncertainties in Dispersion Modeling

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA's recommended regulatory dispersion model, AERMOD. In using a model to estimate ambient pollutant concentrations, the user chooses certain options to apply.

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

c. Uncertainties in Inhalation Exposure Assessment

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

d. Uncertainties in Dose-Response Relationships

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

Cancer UREs used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk.[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

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[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.

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.

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

[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.

determine whether risk exists and whether the risk could be considered significant and widespread.

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

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

e. Uncertainties in Acute Inhalation Screening Assessments

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that the EPA conducts as part of the risk review under CAA 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 exposure scenario. In most cases, as 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 RTR.

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

In Tier 2 of the multipathway and environmental screening assessments, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values, and we identify the actual location of lakes near the facility rather

[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.

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 are the results of the risk assessment and analyses?

1. Chronic Inhalation Risk Assessment Results

The EPA completed an inhalation risk assessment for the major source Iron and Steel Foundries source category. Table 2 of this preamble provides a summary of the results of the inhalation risk assessment for the major source category. More detailed information on the risk assessment can be found in the risk document titled *Residual Risk Assessment for the Iron and*

Steel Foundries Major Source Category in Support of the Risk and Technology Review 2019 Proposed Rule, available in the docket for this rule.

Table 2. Iron and Steel Foundries Inhalation Risk Assessment Results for Major Sources

Number of Facilities[1]	Maximum Individual Cancer Risk (in-1 million)[2] Based on…	Population at Increased Risk of Cancer		Annual Cancer Incidence (cases per year) Based on…	Maximum Chronic Noncancer TOSHI Based on…	Maximum Screening Acute Noncancer HQ[4] Based on…
	Actual/Allowable Emissions[3]	≥ 1-in-1 Million	≥ 10-in-1 Million	Actual/Allowable Emissions	Actual/Allowable Emissions	Actual Emissions
45	50 (naphthalene, benzene)	144,000	6,900	0.02	0.5 (spleen; aniline)	1 (arsenic)

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

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

[3] Actual and allowable emissions are the same for this source category.

[4] Arsenic REL. The maximum estimated acute exposure concentration was divided by available short-term dose-response values to develop an array of HQ values. HQ values shown use the lowest available acute dose-response value, which in most cases is the REL. When an HQ exceeds 1, we also show the HQ using the next lowest available acute dose-response value.

The assessment of inhalation risk from exposure to actual emissions estimates that the increased risk of cancer for the individual most exposed to emissions from the source category (the MIR) is 50-in-1 million, primarily driven by naphthalene from steel foundries mold and core making processes and benzene from steel foundries pouring, cooling, and shakeout processes. The second highest risk facility in the source category has an estimated maximum risk of slightly less than 50-in-1 million, driven by PAHs and napthalene from iron foundries pouring, cooling, and shakeout processes. The estimated maximum risk attributable to emissions of metal HAP (*e.g.*, chromium and nickel) is 30-in-1 million. In total, eight facilities are predicted to pose cancer risk greater than or equal to 10-in-1 million. The total estimated cancer incidence due to emissions from this source category is 0.02 excess cancer cases per year, or one excess case about every 50 years. About 144,000 people are estimated to have cancer risks at or above 1-in-1 million from HAP emitted from the sources in this source category, with 6,900 of those people estimated to have cancer risks greater than or equal to 10-in-1 million. The estimated maximum chronic noncancer TOSHI due to the sources in the source category is 0.5 (spleen) driven by emissions of aniline compounds from iron foundries metal melting processes. No individual would have exposures resulting in a TOSHI at or above 1. See the risk background document referenced above for details of these analyses.

2. Screening Level Acute Risk Assessment Results

Table 2 of this preamble provides the results of the acute inhalation analysis. Based on actual baseline emissions, the highest refined screening acute HQ is estimated to be 1 (based on the acute REL for arsenic compounds from two facilities). The methodology for conducting the acute assessment included refining the analysis to ensure that the highest acute exposure was outside facility boundaries. No facilities are estimated to have an acute HQ based on an REL, AEGL, or an EPRG greater than 1. By definition, the acute REL represents a health-protective level of exposure, with effects not anticipated below those levels, even for repeated exposures.

3. Multipathway Risk Screening and Site-Specific Assessments Results

The PB-HAP emitted by facilities in this source category include POM (of which PAH is a subset), lead compounds, mercury compounds, cadmium compounds and arsenic compounds. To identify potential multipathway health risks from PB-HAP other than lead, we first performed a tiered screening assessment based on emissions of PB-HAP emitted from each facility in the source category.

Of the 45 facilities in the source category, 23 facilities reported emissions of carcinogenic PB-HAP (arsenic and POM), and 21 facilities reported emissions of non-carcinogenic PB-HAP (cadmium and mercury). Three facilities' emission rates of POM exceeded the Tier 1 screening threshold emission rate by up to a factor of 780. Twelve facilities' emission rates of arsenic exceeded the Tier 1 screening threshold emission rate by up to a factor of 24. For the non-carcinogens, mercury was emitted at rates that exceeded the Tier 1 screening threshold emission rate at nine facilities, with the maximum exceedance by a factor of 110. Two facilities exceeded the Tier 1 screening threshold emission rate for cadmium, with the maximum exceedance by a factor of 5.

For the PB-HAP and facilities that exceeded the Tier 1 multipathway screening threshold emission rate, we used facility site-specific information to refine some of the assumptions associated with the local area around the facilities. While maintaining the exposure assumptions, we refined the scenario to examine a subsistence fisher and a gardener separately to develop a Tier 2 screening threshold emission rate. As described in section III.C.4 of this preamble, the ratio of a facility's actual emission rate to the screening threshold emission rate is referred to as a "screening value." The result of this assessment was the development of site-specific Tier 2 emission screening values for each of the PB-HAP. Based on this Tier 2 screening assessment, POM emissions exceeded the cancer screening threshold emission rate values at two facilities, with maximum Tier 2 screening value of 14 for the fisher scenario and a screening value of 19 for the gardener scenario. One facility had a Tier 2 cancer screening value for arsenic of 4. For mercury, seven facilities' emissions exceeded the Tier 2 screening threshold emission rate, with the maximum screening value of 14. No facility exceeded the Tier 2 screening threshold emission rate for cadmium. A Tier 3 multipathway screening analysis was not conducted for this source category. Instead, as noted below, a site-specific refined analysis was performed.

An exceedance of a screening threshold emissions rate (*i.e.,* a screening value greater than 1) in any of the tiers cannot be equated with a cancer risk or a noncancer HQ (or HI). Rather, because of the conservative, or health-protective, assumptions incorporated into the screening analyses, a screening value represents a high-end estimate of what the cancer risk or HQ may be. We choose inputs from the upper end of the range of possible values for the influential parameters used in the screening tiers; and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure.

When tiered screening values for any facility indicate a potential health risk of concern to the public, we may conduct a more refined multipathway assessment. A refined or site-specific assessment replaces many of the assumptions made in the screening assessment with site-specific information. For this source category, we conducted a site-specific multipathway assessment for one of the facilities based upon their mercury emissions. To select the candidate facility for the site-specific assessment, we examined the facilities with the highest Tier 2 mercury screening values and assessed other site-specific information. Considering this information, the Cadillac Casting Inc. facility in Cadillac, Michigan, was selected. We expect that the exposures we assessed for this facility would be among the highest and therefore be representative of the highest potential multipathway risk for the source category.

The site-specific multipathway analysis for mercury estimated a maximum noncancer HQ of 0.05 from fish ingestion under a scenario where an adult female angler is consuming fish at the 99th percentile ingestion rate for a subsistence fisherman. The protocol for developing the refined site-specific multipathway assessment, input data, assumptions, and detailed results are presented in the risk document titled *Residual Risk Assessment for the Iron and Steel Foundries Major Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

In evaluating the potential for multipathway risk from emissions of lead, we compared modeled annual lead concentrations to the primary NAAQS for lead (0.15 $\mu g/m^3$). The highest annual lead concentration of 0.04 μg/m^3 is well below the NAAQS for lead, indicating low potential for multipathway risk of concern due to lead emissions.

4. Environmental Risk Screening Results

As described in section III.C of this document, we conducted an environmental risk screening assessment for the Iron and Steel Foundries major source category for the following pollutants: arsenic, cadmium, HCl, HF, lead, mercury (methyl mercury and mercuric chloride), and POM.

In the Tier 1 screening analysis for PB-HAP (other than lead, which was evaluated differently), arsenic and dioxins/furans emissions had no Tier 1 exceedances for any ecological benchmark. Cadmium emissions at one facility had Tier 1 exceedances for the surface soil no-observed-adverse-effect-level (NOAEL) (mammalian insectivores) benchmark by a maximum factor of 2. Divalent mercury emissions at eight facilities had Tier 1 exceedances for the surface soil threshold level (invertebrate and plant communities) and the sediment threshold level by a maximum factor of 50. Methyl mercury at 10 facilities had Tier 1 exceedances for the surface soil NOAEL (avian ground insectivores and mammalian insectivores), fish NOAEL (avian piscivores), and fish geometric-maximum-allowable-toxicant-level (GMATL) (avian piscivores) by a maximum factor of 80. The POM emissions at two facilities had Tier 1 exceedances for the sediment no-effect level, sediment threshold level, water-column community threshold level, and surface soil NOAEL (mammalian insectivores) benchmarks by a maximum factor of 50.

A Tier 2 screening assessment was performed for cadmium, divalent mercury, methyl mercury, and POM. Cadmium, divalent mercury, and methyl mercury had no Tier 2 exceedances of any ecological benchmark. POM emissions at one facility had Tier 2 exceedances of a sediment community no-effect level benchmark by a maximum factor of 5.

This exceedance was identified for Brinker Lake in Waterloo, Iowa. Upon further evaluation, we found that over half of Brinker Lake is highly disturbed by a sand and gravel dredge mining operation. Therefore, any impact to natural lake sediments and sediment communities from the POM emissions would be minimal in this highly disturbed lake. We looked at the lake with the next highest exceedance from POM emissions, which is a lake just to the west of Brinker Lake named George Wythe Lake; this lake also had an exceedance of the screening value by a factor of 5 for POM for a sediment community no-effect level benchmark. No other POM benchmarks were exceeded for POM emissions in Tier 2. Specifically, none of the other POM sediment community benchmarks were exceeded, including the threshold level and the probable-effect level. In addition, no other POM no-effect level evaluated (mammalian piscivores and mammalian insectivores) was exceeded. Therefore, we do not expect an adverse environmental effect as a result of the POM emissions.

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.

5. Facility-Wide Risk Results

Based on facility-wide emissions, the estimated inhalation cancer MIR is 60-in-1 million, mainly driven by the Iron and Steel Foundries major source category, specifically by naphthalene and benzene from steel foundries mold and core making processes and by benzene from steel foundries pouring, cooling, and shakeout processes. The total estimated cancer incidence from the facility-wide analysis is 0.02 excess cancer cases per year, or one excess case every 50 years. Approximately 164,000 people were estimated to have cancer risks at or above 1-in-1 million, and 7,200 of these people were estimated to have cancer risks at or above 10-in-1 million, from exposure to HAP emitted from sources that are part of the Iron and Steel Foundries major source category and sources that are not part of the source category. The maximum facility-wide TOSHI (neurological) is estimated to be 0.9, mainly driven by emissions of lead and manganese compound emissions from non-category fugitive sources. Emissions from non-category sources are described in the document titled *Residual Risk Assessment for the Iron and Steel Foundries Major Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

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 Iron and Steel Foundries source category across different demographic groups within the populations living near facilities.[21]

The results of the demographic analysis are summarized in Table 3 below. These results, for various demographic groups, are based on the estimated risk from actual emissions for the population living within 50 km of the facilities.

[21] 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.

Table 3. Iron and Steel Foundries Demographic Risk Analysis Results

Item	Nationwide	Population with Cancer Risk at or Above 1-in-1 Million Due to Iron and Steel Foundries	Population with Chronic HI at or Above 1 Due to Iron and Steel Foundries
Total Population	317,746,049	144,053	0
White and Minority by Percent			
White	62%	66%	0%
Minority	38%	34%	0%
Minority by Percent			
African American	12%	16%	0%
Native American	0.8%	0.2%	0%
Hispanic or Latino includes white and nonwhite)	18%	15%	0%
Other and Multiracial	7%	4%	0%
Income by Percent			
Below Poverty Level	14%	20%	0%
Above Poverty Level	86%	80%	0%
Education by Percent			
Over 25 and without High School Diploma	14%	19%	0%
Over 25 and with a High School Diploma	86%	81%	0%
	Linguistically Isolated by Percent		
Linguistically Isolated	6%	4%	0%

The results of the Iron and Steel Foundries major source category demographic analysis indicate that emissions from the source category expose approximately 144,000 people to a cancer risk at or above 1-in-1 million and zero people to a chronic noncancer HI greater than or equal to 1. The African American population exposed to a cancer risk at or above 1-in-1 million due to iron and steel foundries emissions is 4 percent above the national average. Likewise, populations living “Below Poverty Level” and “Over 25 and without High School Diploma” are exposed to cancer risk above 1-in-1 million, 6 and 4 percent above the national average, respectively. The percentages of the at-risk population in other demographic groups are similar to or lower than their respective nationwide percentages.

The methodology and the results of the demographic analysis are presented in a technical report, *Risk and Technology Review – Analysis of Demographic Factors for Populations Living Near Iron and Steel Foundries*, available in the docket for this action.

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

1. Risk Acceptability

As noted 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 an 'acceptable risk' that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR of approximately 1-in-10 thousand" (54 FR 38045, September 14, 1989). For the Iron and Steel Foundries major source category, the risk analysis estimates that the maximum cancer risk to the individual most exposed is 50-in-1 million due to actual emissions or allowable emissions. This risk is less than 100-in-1 million, which is the presumptive upper limit of acceptable risk. The estimated incidence of cancer due to inhalation exposures for the source category is 0.02 excess cancer cases per year, or one excess case every 50 years. We estimate that approximately 144,000 people face an increased cancer risk greater than or equal to 1-in-1 million due to inhalation exposure to HAP emissions from this source category. The Agency estimates that the maximum chronic noncancer TOSHI from inhalation exposure, 0.5 (spleen), is less than 1. The screening assessment of worst-case acute inhalation impacts estimates a maximum acute HQ of 1 (due to arsenic) based on the REL. With regard to multipathway human health risks, we estimate the maximum cancer risk for the highest exposed individual is 20-in-1 million (due to POM) and the maximum noncancer chronic HI is less than 1 for all the PB-HAP.

Considering all of the health risk information and factors discussed above, the EPA proposes that the risks are acceptable. The estimated cancer risks are below the presumptive limit of acceptability, and the noncancer risk results indicate there is minimal likelihood of adverse noncancer health effects due to HAP emissions from this source category.

2. Ample Margin of Safety Analysis

Under the ample margin of safety analysis, we evaluated the cost and feasibility of available control technologies and other measures (including the controls, measures, and costs reviewed under the technology review) that could be applied to further reduce the risks (or potential risks) due to emissions of HAP from the source category. In this analysis, we considered the results of the technology review, risk assessment, and other aspects of our MACT rule review to determine whether there are any controls or other measures that would reduce risk further and would be required to provide an ample margin of safety to protect public health.

Our risk analysis estimates that the maximum individual cancer risk is 50-in-1 million from the Iron and Steel Foundries major source category and that 144,000 people may be exposed to cancer risk exceeding 1-in-1 million. Therefore, we evaluated the sources and HAP that contribute most to these risks and assessed control options that would result in reducing these cancer risks. Based on our analysis, these cancer risks are driven largely by naphthalene, benzene, and PAH emissions from PCS lines and by naphthalene emissions from mold and core making operations. However, HAP metals also pose cancer risks, as described below.

With regard to organic HAP, three potential emission reduction measures were identified: low-emitting binder formulations, carbon adsorption, and thermal oxidizers. In addition, one potential emission reduction measure for metal HAP was identified: capture systems combined with a particulate control device (*e.g.*, scrubber or baghouse). Our evaluation of these emission reduction options are discussed below.

a. Low-Emitting Binder Formulations for Organic HAP Emissions Reduction

Low-emitting or "green" binder formulations may include inorganic binder formulations or organic binder formulations with reduced levels of HAP and/or total organics. Reduced organic HAP content in the chemical binders leads to reductions in organic HAP emissions from the mold and core making operations. Organic HAP emissions from PCS lines are impacted by both the HAP content of the binders and the total organic content of the binders available for pyrolysis when exposed to molten metal. Therefore, a binder system with low HAP content but with a high overall organic content may still have substantial emissions during the PCS process. Thus, there are some difficulties determining whether an organic binder system is "low emitting," and testing generally would be needed to ensure an alternative organic binder system would reduce emissions for the facility when considering mold and core making and PCS emissions combined. Inorganic binder systems, on the other hand, are generally effective at reducing HAP emissions from both mold and core making operations and PCS lines and may be considered "low-emitting" with limited or no additional testing. However, inorganic binder systems may not be practical or feasible in some applications.

Different binder systems exist because of their different properties and capabilities. The size, shape, and tolerance of the castings, the production volume, and the environmental conditions (temperature and humidity) must all be considered when selecting a binder system. Some binder formulations may have poor performance when the humidity is high; some may be negatively impacted by high or low ambient temperatures; some may not have the strength needed for large castings, while others may be too durable, making them difficult to separate from the metal castings (increasing shakeout times). Based on the myriad of conditions impacting binder selection, there is no single binder system that will work in all applications, and we cannot determine if a low-emitting binder alternative is available for all applications. As such, we conclude that it would be inappropriate to propose a national emissions standard requiring the use of low-emitting binder systems. We recognize that some facilities may be able to meet tighter organic HAP emission limits, if established, using low-emitting binder systems; however, there would likely be cases where low-emitting binder systems could not meet production performance requirements and, therefore, other control options might be needed. Therefore, we are not proposing any requirements based on use of binders to reduce emissions. However, we solicit comments and data on the potential use of low emitting binders to reduce organic HAP emissions and whether any such requirement should be considered for the Iron and Steel Foundries NESHAP.

b. Carbon Adsorption and Thermal Oxidizers for Organic HAP Emissions Reduction

Carbon adsorption and thermal oxidizers are both add-on control measures for organic HAP that we identified and considered for control of PCS lines during the development of the MACT standard for major source iron and steel foundries (67 FR 78292). These control systems are also applicable to mold and core making operations, and we expect that the design and performance of these controls when applied to mold and core making operations would be similar to that for PCS lines. The control efficiency for a carbon adsorption system is typically 90 to 95 percent, while thermal oxidizers typically achieve 98 percent or higher destruction efficiencies. However, at low concentrations, the control efficiency of the system generally declines, and the EPA has a long history of establishing an alternative organic concentration limit of 20 parts per million by volume (ppmv) to address cases of low inlet concentrations. Based on the low organic HAP concentrations observed in measured emissions from well-captured PCS lines, the EPA established a volatile organic HAP limit of 20 ppmv in the original NESHAP for automated conveyor and pallet cooling lines and automated shakeout lines for new iron and steel foundries that use a sand mold system [40 CFR 63.7690(a)(10)] and did not provide a control efficiency alternative. Note that this control system is for sources at new iron and steel foundries where close capture hooding systems can be integrated into the foundry design. If capture systems are not present and need to be added to control emissions from existing mold and core making or PCS lines, we expect the hooding system will be less enclosed and require more ventilation air to capture the emissions. Consequently, the inlet organic HAP concentrations are expected to be less than 100 ppmv going into the control device, which is considered a relatively low inlet concentration for these types of control devices.

We reviewed the 2014 NEI data and developed aggregate organic HAP emission estimates for each foundry from their mold and core making and PCS lines. We estimated that total volatile organic compound (VOC) emissions were approximately 1.5 times the organic HAP emissions. We then developed four differently sized model control systems to span the range of emissions observed in the NEI data. In this screening analysis, we developed a single control system for the aggregate emissions from mold and core making and PCS lines. In practice, these emission sources may be a large distance apart, and it may not be practical to employ a single control system for the aggregate emissions. However, for a screening assessment, we conclude this assumption represents the most cost-effective control scenario. If the cost for the aggregate control system is determined to be not cost effective under this scenario, we can conclude with confidence that separate control systems for mold and core making and PCS lines would also not be cost effective.

The capital investment and total annualized costs for four differently sized carbon adsorption and thermal oxidizer control systems (both recuperative and regenerative) were developed using the recently updated chapters of the *EPA Air Pollution Control Cost Manual*.[22,23,24] These model plant control systems were assigned to each major source iron and steel foundry based on their reported 2014 NEI emissions. The emission reductions for each facility were estimated assuming the carbon adsorption system would achieve 90-percent control efficiency and that the thermal oxidizer would achieve greater than 99-percent control efficiency. Based on the inlet concentrations expected, particularly for a retrofit control system where close capture hooding may not be feasible, the assumed emission reductions serve as an upper-range estimate. It is likely that the exhaust concentration of organic HAP would be less than 100 ppmv, so that meeting the 20-ppmv emissions limit in the current NESHAP would only require 80-percent, or less, emissions reduction. Nonetheless, we assumed an upper-range emission reduction for this analysis because this assumption would yield lower cost-effectiveness values. If the control system is not cost effective using these upper-range emission reduction estimates, we can conclude that the control systems for mold and core making and PCS lines would not be

[22] *Carbon Adsorbers*. Section 3.1, Chapter 1 as revised for the 7th Edition of *EPA Air Pollution Control Cost Manual*. October 2018. Available at: *https://www.epa.gov/sites/production/files/2018-10/documents/final_carbonadsorberschapter_7thedition.pdf*.

[23] *Incinerators and Oxidizers*. Section 3.2, Chapter 2 as revised for the 7th Edition of *EPA Air Pollution Control Cost Manual*. November 2017. Available at: *https://www.epa.gov/sites/production/files/2017-12/documents/oxidizersincinerators_chapter2_7theditionfinal.pdf*.

[24] All costs provided in this section are in 2017 dollars.

cost effective when applied to the actual facilities, which are expected to have low inlet organic HAP concentrations and likely lower required control efficiencies.

Our analysis indicated that the cost effectiveness, measured in dollars per ton, was significantly lower for the carbon adsorption control system compared to both the recuperative and regenerative thermal oxidizer control systems. The nationwide total capital investment for carbon adsorption control systems was estimated to be $27 million spread across 25 facilities which reported organic HAP emissions from these sources.[25] The nationwide total capital investment for recuperative thermal oxidizer control systems was similar, estimated to be $30 million for the 25 facilities. However, the total annualized costs (including capital recovery) for the thermal oxidizer system are about 3 times that of the carbon adsorption system ($17 million versus $5.8 million) due to higher variable operating and maintenance costs. Specifically, the low organic concentrations in the exhaust stream to be controlled require high consumption rates of auxiliary fuel to maintain appropriate combustion temperatures for the recuperative thermal oxidizer system. In contrast, a regenerative thermal oxidizer system has better thermal efficiencies and can reduce the total annualized costs to $12 million, but requires a total capital investment of $70 million. Consequently, since emissions reductions were assumed to be similar for any of these control systems, the average cost effectiveness of carbon adsorption control systems ($12,700 per ton of organic HAP removed) was estimated to be significantly lower than for either recuperative or regenerative thermal oxidizer control systems ($26,000 to $37,000 per ton). For more detail regarding the cost estimates, see *Control Cost Estimates for Organic HAP Emissions from Iron and Steel Foundries* (Docket ID No. EPA-HQ-OAR-2019-0373).

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[25] The other 20 major source facilities in our dataset did not report any emissions of organic HAP from these processes. Therefore, we assumed those 20 facilities could comply with this control option without additional costs.

With regard to risk reductions, we estimate that application of carbon adsorption requirements to the source category would reduce the MIR from 50-in-1 million to 30-in-1 million, the number of people with risks ≥ 10-in-1 million would be reduced from 6,900 to 400, and the number of people with risks ≥ 1-in-1 million would be reduced from 144,000 to 42,000. Under this control scenario the primary remaining risk drivers would be HAP metals since the organic HAP would be reduced significantly by the carbon adsorption systems.

Based on our analysis, we propose to conclude that these control systems are not cost effective for this source category for the following reasons. First, our estimated control costs, which represent a best-case (*i.e.*, most cost effective) scenario, are relatively high while the reductions in risks that would be achieved by those controls are moderate. In addition, a number of facilities are small businesses, and we estimate that at least one small business would likely incur costs exceeding 2 percent of their annual revenue, which would likely result in negative impacts for this business. Nevertheless, we solicit comments and data regarding our analyses described above and we solicit comments regarding our proposed determination that these controls are not cost effective.

c. Capture and Particulate Control Devices for Metal HAP Emissions Reduction

While the highest cancer risk was due to organic HAP, our risk analysis also indicated that metal HAP emissions sources at four facilities result in cancer risk to the individual most exposed greater than 10-in-1 million and that 42,000 (of the 144,000 people for the entire source category) may have cancer risks exceeding 1-in-1 million due to metal HAP emissions. Therefore, we also evaluated these metal HAP emission sources and assessed control options that would result in reducing these cancer risks. The foundry emission sources that contributed to these elevated cancer risks from metal HAP include scrap charging, alloy addition, and molten metal transfers. The emissions from these sources that are driving most of the estimated risks for HAP metals are "fugitive" emissions which are typically emitted through open roof vents and are currently subject to the building opacity limit in the NESHAP. Reducing these emissions for these metal HAP sources would require installing and operating capture systems (*e.g.*, hooding, duct work, fans, etc.) that direct the emissions to a particulate control device (*e.g.*, scrubber or baghouse). In some applications, an existing particulate control device may have adequate capacity for handling the additional gas stream load, but in general, we expect that a new particulate control device would be required due to the relatively large volumes of air that may need to be collected. As most iron and steel foundries use baghouse control systems for their PM control, we estimated the costs based on installing new hooding, duct work, fans, and a relatively small baghouse.

Initially, we evaluated a requirement for all facilities to capture and control these fugitive metal HAP emission sources. The average metal HAP emissions for foundries from these fugitive emission sources are estimated to be 0.18 tpy based on the NEI data. We estimated the capital investment and total annualized costs for two differently sized baghouse capture and control systems using the methods provided in the 6th Edition of the *EPA Air Pollution Control Cost Manual*[26] and we assumed approximately half of the foundries could control their sources using the smaller baghouse capture and control system and the other half of the foundries would need the larger capture and control system. The nationwide total capital investment for all major source foundries to install metal HAP capture and control systems was estimated to be $23

[26] *Baghouses and Filters*. Section 6, Chapter 1 (chapter dated December 1998). *EPA Air Pollution Control Cost Manual*. 6th Edition. EPA/452/B-02-001. Available at: *https://www3.epa.gov/ttncatc1/dir1/c_allchs.pdf*.

million; the total annualized costs (including capital recovery) for the metal HAP control systems were estimated to be \$6 million.[27] The nationwide metal HAP emissions reduction, assuming an aggregate capture and control efficiency of 90 percent, was estimated to be 4.64 tpy for an average cost effectiveness of \$1.3 million per ton of metal HAP removed.

Based on our review of the NEI data, we observed that many foundries had very limited estimated metal HAP emissions from these fugitive sources. The EPA has concluded this is mainly because some foundries, particularly grey iron, do not use metal alloying. Many of these foundries may also use cupola furnaces, which are continuous melting furnaces. It is easier to control emissions during scrap charging for these furnaces compared to other types of furnaces used at foundries. Therefore, we also considered a regulatory option that would require only foundries that perform alloying with metal HAP or that otherwise produce casting with high metal HAP content to control the metal HAP emission sources. Under this scenario, we estimated that the average metal HAP emissions from these fugitive emission sources are 0.29 tpy. The nationwide total capital investment for a targeted rule requiring metal HAP capture and control systems for foundries with higher metal HAP alloys was estimated to be \$13 million; the total annualized costs for (including capital recovery) the metal HAP control systems were estimated to be \$3.3 million. The nationwide metal HAP emissions reduction, assuming an aggregate capture and control efficiency of 90 percent, was estimated to be 4.16 tpy for an average cost effectiveness of \$790,000 per ton of metal HAP removed. For more detail regarding these cost estimates for the metal HAP control systems, see *Control Cost Estimates for Metal HAP Emissions from Iron and Steel Foundries*, which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2019-0373).

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[27] Costs are reported in 2017 dollars.

With regard to risk reductions, we estimate that application of either of these two improved capture and control of HAP metals described above would reduce the MIR due to HAP metals from 30-in-1 million to about 3-in-1 million. However, the overall MIR for the source category would still be 50-in-1 million due to organic HAP, as described above. With regard to population exposures, we estimate that the number of people with risks greater than or equal to 10-in-1 million would only be reduced slightly (*e.g.*, 6,900 to 6,500), and number of people with risks greater than or equal to 1-in-1 million would be reduced from 144,000 to about 100,000 if we were to require metal HAP emissions reductions.

Based on consideration of the costs and cost effectiveness of both the organic HAP and metal HAP emission control systems, consideration of potential impacts to small businesses, the moderate risk reductions that would be achieved, and the uncertainties in the emissions estimates (as described in sections III.C.1 and 2 of this preamble), we propose that the Iron and Steel Foundries major source NESHAP provides an ample margin of safety to protect health and we are not proposing any changes to the NESHAP based on the risk review. Nevertheless, we solicit comments and data regarding our analyses described above. Additionally, we solicit comments regarding whether it would be appropriate to require the controls for organic HAP and/or metal HAP described above, and, if so, why, and we also solicit comments regarding our proposed determination that the current NESHAP provides an ample margin of safety to protect public health.

3. Adverse Environmental Effect

As described in sections III.A and IV.A.4 of this preamble, we conducted an environmental risk screening assessment for the Iron and Steel Foundries major source category for the following pollutants: arsenic, cadmium, dioxins/furans, HCl, HF, lead, mercury (methyl mercury and mercuric chloride), and POM. As explained in section IV.A of this preamble, based on our analyses, we do not expect 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.

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

As described in section III.B of this preamble, our technology review focused on the identification and evaluation of potential developments in practices, processes, and control technologies that have occurred since the major source and area source NESHAP were promulgated in 2004 and 2008, respectively. In conducting the technology review, we reviewed various informational sources regarding the emissions from iron and steel foundries. We conducted separate but similar reviews for the Iron and Steel Foundries major source category and the two area source categories. The reviews included a search of the RBLC database, reviews of air permits for iron and steel foundries, and a review of relevant literature, including international best practices. We reviewed these data sources for information on practices, processes, and control technologies that were not considered during the development of the Iron and Steel Foundries NESHAP. We also looked for information on improvements in practices, processes, and control technologies that have occurred since development of the Iron and Steel Foundries NESHAP.

After reviewing information from the aforementioned sources, we did not identify any developments in practices, processes or control technologies to further reduce emissions from major source iron and steel foundries under 40 CFR part 63, subpart EEEEE. Furthermore, as part of our technology review for major sources, we considered the same controls and measures described above in section IV.B.2 of this preamble (*i.e.*, in the ample margin of safety analysis), including low-emitting binder formulations, carbon adsorption, and thermal oxidizers for control of organic HAP and improved capture systems with new baghouses for the metal HAP emissions. The costs, cost effectiveness, and other considerations for these four control scenarios for major sources are described in detail in section IV.B.2 of this preamble. As discussed in section IV.B.2 of this preamble, we also considered revisions in the cost algorithms for carbon adsorption systems and thermal oxidizers in our assessment of control options to reduce organic HAP emissions. We did not identify any improvements in performance of these control systems for major sources, and our updated cost analysis continues to demonstrate that these control systems are not cost effective for existing sources in this major source category, largely due to the dilute nature of the organic HAP emission streams. Further details regarding our technology review for major source iron and steel foundries are available in the memorandum titled: *Major Source Technology Review for the Iron and Steel Foundries NESHAP*, which is available in the docket for this proposed action

With regard to area sources, we did not identify any developments in practices, processes or control technologies to those evaluated during the development of 40 CFR part 63, subpart ZZZZZ. Specifically, we did not identify any improvements in performance of metal HAP control systems used for area source iron and steel foundries or any significant change in the control costs for these systems. Consequently, we concluded that the analyses of control options conducted in 2008 to support the development of metal HAP emission limits in 40 CFR part 63, subpart ZZZZZ, are still comprehensive and valid today, and that the rationale and conclusions supporting the final area source metal HAP emission limits are still appropriate. We did not specifically evaluate or calculate the costs, cost effectiveness, feasibility, or economic impacts of the four control scenarios detailed in section IV.B.2 of this preamble for area sources. However, since we conclude these controls and measures are either not feasible and/or not cost effective for major sources, we conclude they would also not be feasible and/or not cost effective for area sources since area sources typically have lower emissions than the major sources and a larger percent of area sources are likely to be small businesses. Further details regarding our technology review for area source iron and steel foundries are available in the memorandum titled: *Area Source Technology Review for the Iron and Steel Foundries NESHAP*, which is available in the docket for this proposed action.

Based on the technology review described above, we determined that there are no developments in practices, processes, or control technologies that necessitate revisions to the NESHAP for major source Iron and Steel Foundries (40 CFR part 63, subpart EEEEE) or the NESHAP for area source Iron and Steel Foundries (40 CFR part 63, subpart ZZZZZ). Therefore, we are not proposing any changes to these NESHAP based our technology review. We solicit comments and data regarding our technology review analyses described above and our proposed determination that no revisions to the NESHAP are warranted based on our technology review.

D. What other actions are we proposing?

In addition to the proposed determinations described above, we are proposing revisions to the SSM provisions of the NESHAP in order to ensure that they are consistent with the Court decision in *Sierra Club v. EPA*, 551 F. 3d 1019 (D.C. Cir. 2008), which vacated two provisions that exempted sources from the requirement to comply with otherwise applicable CAA section 112(d) emission standards during periods of SSM. We also are proposing various other changes to the recordkeeping and reporting requirements of the NESHAP to require the use of electronic reporting of performance test reports and semiannual reports. We also are proposing to correct section reference errors and make other minor editorial revisions. Our analyses and proposed changes related to these issues are discussed below.

1. SSM

In its 2008 decision in *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), the Court vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), holding that under section 302(k) of the CAA, section 112 emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some section 112 standards apply continuously.

We are proposing the elimination of the SSM exemption in both Iron and Steel Foundries NESHAP which appears at 40 CFR 63.7746 and Table 1 to Subpart EEEEE of Part 63 (Applicability of General Provisions to Subpart EEEEE) and in Table 3 to Subpart ZZZZZ of Part 63 (Applicability of General Provisions to New and Existing Affected Sources Classified as Large Foundries). Consistent with *Sierra Club v. EPA,* we are proposing standards in this rule that apply at all times. We are also proposing several revisions to Table 1 to Subpart EEEEE as is explained in more detail below. For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption as further described below.

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.

In proposing the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, has not proposed alternate emission standards for those periods. During periods where the process is in startup or shutdown, the emission controls used should still provide HAP emissions control. For example, emissions from a melting furnace can be directed to a baghouse while the melting furnace is undergoing startup or shutdown. Similarly, a triethylamine scrubber or carbon adsorption system can be operational while the emission source being controlled is undergoing startup or shutdown. The one potential exception to this is the afterburner used to control organic HAP emissions from a cupola. The cupola afterburner control system is primarily designed to burn the carbon monoxide emitted as a result of the combustion of coke under oxygen limited conditions during normal process operations. Most cupola afterburner systems rely on the heat input from carbon monoxide in the cupola's off-gas to maintain incineration temperatures. During startup of the cupola, complete combustion of natural gas or other fuels are used to preheat the cupola furnace. While the combustion of the startup fuels do not generate adequate carbon monoxide to maintain incineration temperatures in the afterburner section of the cupola, the complete combustion of the startup fuels will not generate organic HAP emissions. Therefore, we are proposing that foundry owners or operators can comply with the complete combustion limits (20-ppmv organic HAP limit) during cupola startup even though the cupola afterburner is not operating at the same temperature as it does during normal operations. We understand that there will be a transition period when the cupola startup operation shifts from a complete (oxygen rich) combustion mode to a partial (oxygen limited) combustion mode when the cupola afterburner temperature may not be sufficient to ensure full combustion of the organic HAP that may be produced during this transition. However, this transition period is expected to be short relative to the 3-hour averaging period of the organic HAP emissions limit. Therefore, we are proposing that it is not necessary to provide alternative standards for periods of startup or shutdown. We request comment on the need for alternative standards during startup and shutdown. Commenters should provide data demonstrating that an alternative standard is necessary and provide suggestions regarding recommended alternative emission limitations and monitoring parameters that ensure compliance with the alternative emission limitations.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead they are, by definition, sudden, infrequent, and not reasonably preventable failures of emissions control, process, or monitoring equipment. (40 CFR 63.2) (definition of malfunction). The EPA interprets CAA section 112 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 112 standards and this reading has been upheld as reasonable by the Court in *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 606-610 (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. As the Court has recognized, the phrase "average emissions limitation achieved by the best performing 12 percent of" sources "says nothing about how the performance of the best units is to be calculated." *Nat'l Ass'n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1141 (D.C. Cir. 2013). While the EPA accounts for variability in setting emissions standards, nothing in CAA section 112 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source. 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. Similarly, although standards for area sources are not required to be set based on “best performers,” the EPA is not required to consider malfunctions in determining what is “generally available.”

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

Although no statutory language compels the EPA to set standards for malfunctions, the EPA has the discretion to do so where feasible. For example, in the Petroleum Refinery Sector RTR, the EPA established a work practice standard for unique types of malfunction that result in releases from 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, 75211-14 (December 1, 2015). The EPA considers whether circumstances warrant setting standards for a particular type of malfunction and, if so, whether sufficient information is available to identify the relevant best performing sources and establish a standard for such malfunctions. We also encourage commenters to provide any such information.

The EPA anticipates that it is unlikely that a malfunction in the foundry operations will result in a violation of the standard because the air pollution control equipment used to control the emissions from the process would still be operating. If the malfunction occurs in the pollution control equipment, the iron and steel foundry operator should discontinue process operations until such time that the air pollution control systems are operable in order to comply with the requirements to minimize emissions and operate according to good air pollution practices. In general, process operations should be able to be shutdown quickly enough to avoid a violation of an emissions limitation. However, a malfunction in the control equipment could result in a violation of the standard depending on how quickly emissions decline upon process shut down. For example, once molten metal is poured into molds, the molds can emit organic HAP for several hours while they are cooling. Thus, even though process operations may be shut down immediately (*e.g.*, no more molten metal is poured into molds once the organic HAP control system malfunctions), the emissions may continue and a deviation may occur as a result. In this case, foundry owners or operators must report the deviation, the quantity of HAP emitted over the emissions limit, the cause of the deviation, and the corrective action taken to limit the emissions during the event.

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

a. General Duty

We are proposing to revise the General Provisions tables (Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63) of 40 CFR Part 63 to provide a separate entry for 40 CFR 63.6(e) and changing the “yes” in column 3 to a “no.” Additionally, we are proposing to revise the current 40 CFR 63.10890(i) by re-designating it to 40 CFR 63.10890(j) and removing the reference to 40 CFR 63.6(e). Section 63.10890(i) currently contains a summary of the General Provision sections that apply to affected sources classified as small foundries (similar to the Table 3 to Subpart ZZZZZ of Part 63 for affected sources classified as large foundries). Section 63.6(e) describes the general duty to minimize emissions and requirements for an SSM plan. Some of the language in that section is no longer necessary or appropriate in light of the elimination of the SSM exemption. For 40 CFR part 63, subpart EEEEE, we are proposing to revise general duty regulatory text at 40 CFR 63.7710(a) to eliminate the reference to 40 CFR 63.6(e)(1)(i) but maintain the general duty to "…operate the foundry in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart." We are also proposing to delete the phrase "…, except during periods of startup, shutdown, or malfunction" from 40 CFR 63.7720(a) and to delete and reserve 40 CFR 63.7746(b), which states that deviations during periods of SSM are not violations if the source was operating in accordance to 40 CFR 63.6(e)(1). For 40 CFR part 63, subpart ZZZZZ, we are proposing to add general duty regulatory text at 40 CFR 63.10890(i) for affected sources classified as small foundries and at 40 CFR 63.10896(c) for affected sources classified as large foundries that reflects the general duty to minimize emissions while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal operations, startup and shutdown, and malfunction events in describing the general duty. Therefore, the language the EPA is proposing in 40 CFR part 63, subparts EEEEE and ZZZZZ, does not include that language from 40 CFR 63.6(e)(1).

Similarly, 40 CFR 63.6(e)(1)(ii) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant with the general duty requirement being revised or added in 40 CFR part 63, subparts EEEEE and ZZZZZ.

b. SSM Plan

In our proposed revisions of Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63 to provide a separate entry for 40 CFR 63.6(e) and changing the "yes" in column 3 to a "no," we are also proposing that 40 CFR 63.6(e)(3) does not apply. Generally, the paragraphs under 40 CFR 63.6(e)(3) require development of an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As noted, the EPA is proposing to remove the SSM exemptions. Therefore, affected units will be subject to an emission standard during such events. The applicability of a standard during such events will ensure that sources have ample incentive to plan for and achieve compliance and, thus, the SSM plan requirements are no longer necessary. We are also proposing to delete and reserve 40 CFR 63.7720(c) that details the requirement to prepare the SSM plan and to revise the definition of "off blast" to remove reference to the SSM plan.

c. Compliance with Standards

We are proposing to revise the General Provisions tables (Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63) to provide a separate entry for 40 CFR 63.6(f)(1) and changing the "yes" in column 3 to a "no." The current language of 40 CFR 63.6(f)(1) exempts sources from non-opacity standards during periods of SSM. As discussed above, the Court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club*, the EPA is proposing to revise standards in this rule to apply at all times.

We are proposing to revise the General Provisions tables (Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63) entry for 40 CFR 63.6(h) to provide separate entries for 40 CFR 63.6(h)(1) and 40 CFR 63.6(h)(2)-(9). We are proposing to change the entry for 40 CFR 63.6(h)(1) to include a "no" in column 3. The current language of 40 CFR 63.6(h)(1) exempts sources from opacity standards during periods of SSM. As discussed above, the Court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club,* the EPA is proposing to revise standards in this rule to apply at all times. In a related amendment, the EPA is proposing to revise the definition of "deviation" in both 40 CFR part 63, subparts EEEEE and ZZZZZ, to remove subsection (3) that describes deviations during periods of SSM. Since the EPA is proposing to revise standards in this rule to apply at all times, the distinction described in subsection (3) is no longer relevant.

d. Performance Testing

We are proposing to revise the General Provisions tables (Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63) to add a separate entry for 40 CFR 63.7(e)(1) and change the "yes" in column 3 to a "no." Section 63.7(e)(1) describes performance testing requirements. The EPA is instead proposing to revise 40 CFR 63.7732(a) and 40 CFR 63.10898(c) to add a performance testing requirement to test under representative conditions. We are also proposing to revise 40 CFR 63.7732(a) and 40 CFR 63.10898(c) to remove the reference to 40 CFR 63.7(e)(1). The performance testing requirements we are proposing to add differ from the General Provisions performance testing provisions in several respects. The regulatory text does not include the language in 40 CFR 63.7(e)(1) that restated the SSM exemption and language that precluded startup and shutdown periods from being considered "representative" for purposes of performance testing. The proposed performance testing provisions do not allow performance testing during startup or shutdown. As in 40 CFR 63.7(e)(1), performance tests conducted under this subpart should not be conducted during malfunctions because conditions during malfunctions are often not representative of normal operating conditions. The EPA is proposing to add language that requires the owner or operator to record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Section 63.7(e) requires that the owner or operator make available to the Administrator such records "as may be necessary to determine the condition of the performance test" available to the Administrator upon request but does not specifically require the information to be recorded. The regulatory text the EPA is proposing to add to this provision builds on that requirement and makes explicit the requirement to record the information.

e. Monitoring

We are proposing to revise the General Provisions tables (Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63) by adding a separate entry for 40 CFR 63.8(c)(1)(i) and (iii) and including a "no" in column 3. The cross-references to the general duty and SSM plan requirements in those subparagraphs are not necessary in light of other requirements of 40 CFR 63.8 that require good air pollution control practices (40 CFR 63.8(c)(1)) and that set out the requirements of a quality control program for monitoring equipment (40 CFR 63.8(d)).

We are proposing to revise the General Provisions tables (Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63) by adding a separate entry for 40 CFR 63.8(d)(3) and including a "no" in column 3. The final sentence in 40 CFR 63.8(d)(3) refers to the General Provisions' SSM plan requirement which is no longer applicable. The EPA is proposing to add provisions to subpart EEEEE at 40 CFR 63.7752(b)(2) and to subpart ZZZZZ at 40 CFR 63.10899(b)(14) that is identical to 40 CFR 63.8(d)(3) except that the final sentence is replaced with the following sentence: "The program of corrective action should be included in the plan as required under §63.8(d)(2)(vi)."

The monitoring requirements at 40 CFR 63.10897(g) require owners or operators to restore normal operations as quickly as possible when monitoring demonstrates a deviation of an emission limit (including an operating limit). The EPA is also proposing to revise 40 CFR 63.10897(g) to remove reference to minimizing periods of SSM. We consider this to be redundant to the requirement to take "any necessary corrective action to restore normal operations and prevent the likely recurrence of the exceedance" and is irrelevant since the EPA is proposing to revise standards in this rule to apply at all times, including periods of SSM.

f. Recordkeeping

We are proposing to revise the General Provisions tables (Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63) by adding a separate entry for 40 CFR 63.10(b)(2)(i), (ii), (iv) and (v) and including a "no" in column 3. Section 63.10(b)(2)(i) describes the recordkeeping requirements during startup and shutdown. These recording provisions are no longer necessary because 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. Consequently, we are also proposing additional revisions to 40 CFR part 63, subparts EEEEE and ZZZZZ, to remove SSM-related records. First, we are proposing to replace the SSM recordkeeping requirement at 40 CFR 63.7752(a)(2), which refers to records specified in 40 CFR 63.6(e)(3), with requirements to keep records of maintenance performed on air pollution control and monitoring equipment as required by 40 CFR 63.10(b)(2)(iii). Second, we are proposing to revise the recordkeeping requirement at 40 CFR 63.7752(b)(4) to remove the records needed to indicate whether deviation of a continuous emission monitoring system occurred during periods of SSM. Third, we are proposing to revise the recordkeeping requirement at 40 CFR 63.10899(b) to revise the general reference to records required by 40 CFR 63.10 to specify that only records required by 40 CFR 63.10(b)(2)(iii), (vi) through (xiv), and (b)(3) are necessary.

Section 63.10(b)(2)(ii) describes the recordkeeping requirements during a malfunction. The EPA is proposing to add such requirements to 40 CFR 63.7752(d) and to 40 CFR 63.10899(b)(15). The regulatory text we are proposing to add differs from the General Provisions it is replacing in that the General Provisions requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution control, and monitoring equipment. The EPA is proposing that this requirement apply to any failure to meet an applicable standard and is requiring that the source record the date, time, and duration of the failure rather than the "occurrence." The EPA is also proposing to add requirements to 40 CFR 63.7752(d) and to 40 CFR 63.10899(b)(15) that sources keep records that include a list of the affected source or equipment and actions taken to minimize emissions, an estimate of the quantity of each regulated pollutant emitted over the standard for which the source failed to meet the standard, and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

Section 63.10(b)(2)(iv), when applicable, requires sources to record actions taken during SSM events when actions were inconsistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required. The requirement previously applicable under 40 CFR 63.10(b)(2)(iv)(B) to record actions to minimize emissions and record corrective actions is now applicable by the proposed requirements in 40 CFR 63.7752(d) and in 40 CFR 63.10899(b)(15).

Section 63.10(b)(2)(v), when applicable, requires sources to record actions taken during SSM events to show that actions taken were consistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required.

We are proposing to revise the General Provisions table for major source foundries (Table 1 to Subpart EEEEE of Part 63) by moving the reference to 40 CFR 63.10(c)(15) to include it with an entry for 40 CFR 63.10(c)(7) and (8) that includes a “no” in column 3. The EPA is proposing that 40 CFR 63.10(c)(15) no longer apply. When applicable, the provision allows an owner or operator to use the affected source’s SSM plan or records kept to satisfy the recordkeeping requirements of the SSM plan, specified in 40 CFR 63.6(e), to also satisfy the requirements of 40 CFR 63.10(c)(10) through (12). The EPA is proposing to eliminate this requirement because SSM plans would no longer be required, and, therefore, 40 CFR 63.10(c)(15) no longer serves any useful purpose for affected units. The General Provisions table for area source foundries (Table 3 to Subpart ZZZZZ of Part 63) already indicates that 40 CFR 63.10(c)(15) does not apply, so the EPA is not proposing to revise the designation in column 3 for this entry. However, based on the additional records specified in 40 CFR 63.10899(b)(15), the recordkeeping requirements in 40 CFR 63.10(c)(7) and (8) are redundant and no longer necessary. Therefore, we are proposing to include a single entry for 40 CFR 63.10(c) in Table 3 to Subpart ZZZZZ that includes a “no” in column 3.

g. Reporting

We are proposing to revise the General Provisions tables (Table 1 to Subpart EEEEE of Part 63 and Table 3 to Subpart ZZZZZ of Part 63) entry for 40 CFR 63.10(d)(5) by changing the "yes" in column 3 to a "no" and to delete and reserve 40 CFR 63.7751(b)(4) and (c), which cross-references the 40 CFR 63.10(d)(5) reporting requirements. Section 63.10(d)(5) describes the reporting requirements for startups, shutdowns, and malfunctions. To replace the General Provisions reporting requirement, the EPA is proposing to add reporting requirements to 40 CFR 63.7751(b)(7) and (8) and 40 CFR 63.10899(c). The replacement language differs from the General Provisions requirement in that it eliminates periodic SSM reports as a stand-alone report. We are proposing language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the semiannual report already required under this rule. We are proposing that the report must contain the date, time, duration, and the cause of such events (including unknown cause, if applicable), a list of the affected source or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

We will no longer require owners or operators to determine whether actions taken to correct a malfunction are consistent with an SSM plan, because plans would no longer be required. The proposed amendments, therefore, eliminate the cross-reference to 40 CFR

63.10(d)(5)(i) that contains the description of the previously required SSM report format and submittal schedule from this section. These specifications are no longer necessary because the events will be reported in otherwise required reports with similar format and submittal requirements. For example, both 40 CFR part 63, subparts EEEEE and ZZZZZ require foundry owners or operators to prepare and operate according to a site-specific operating and maintenance plan for each control device and continuous monitoring system associated with that control device and to maintain records documenting conformance with these requirements and the added reporting requirements to 40 CFR 63.7751(b)(7) and (8), as well as 40 CFR 63.10899(c) to include reporting of specific deviations.

The proposed amendments also eliminate the cross-reference to 40 CFR 63.10(d)(5)(ii), which 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 a startup, shutdown, or malfunction were not consistent with an SSM plan, because plans would no longer be required.

We are also proposing to revise the entry for 40 CFR 63.10(e)(3) in Table 3 to Subpart ZZZZZ of Part 63 by changing the "yes" in column 3 to "no." Given the additions to the reporting requirements as described above, we are also proposing to include all relevant deviation reporting requirements directly in 40 CFR 63.10899(c), rather than relying on cross-reference to 40 CFR 63.10(e)(3). These edits are not expected to alter the reporting burden; however, the direct inclusion of the 40 CFR 63.10(e)(3) reporting requirements into 40 CFR 63.10899(c) will provide clarity of the reporting requirements to area source foundry owners and operators. We note that 40 CFR part 63, subpart EEEEE, directly includes these reporting elements and indicates that 40 CFR 63.10(e)(3) does not apply, so no revision to this entry is required for the major source foundry NESHAP.

2. Electronic Reporting

Through this proposal, the EPA is proposing that owners and operators of iron and steel foundries submit electronic copies of required initial notifications, performance test reports, performance evaluation reports, and semiannual 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 Docket ID Item No. EPA-HQ-OAR-2018-2019-0373. 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[28] at the time of the test be submitted in the format generated through the use of the ERT and that other performance test results be submitted in portable document format (PDF) using the attachment module of the ERT. Similarly, performance evaluation results of continuous monitoring systems measuring relative accuracy test audit pollutants that are supported by the ERT at the time of the test must be submitted in the format generated through the use of the ERT and other performance evaluation results be submitted in PDF using the attachment module of the ERT.

For semiannual reports, the proposed rule requires that owners and operators use the appropriate spreadsheet template to submit information to CEDRI. A draft version of the

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

proposed templates for these reports is included in the docket for this rulemaking.[29] As part of these revisions, we are also proposing that the semiannual mercury switch removal report, currently described in 40 CFR 63.10899(b)(2)(ii), must be included as part of the semiannual compliance report. Currently, the semiannual mercury switch removal report may be submitted as a standalone report or as part of the semiannual compliance report. Therefore, to aide in the electronic reporting of mercury switch removal when a site-specific plan for mercury is used, we are proposing to move the reporting in 40 CFR 63.10899(b)(2)(ii) to the semiannual compliance report requirements included under 40 CFR 63.10899(c). The EPA specifically requests comment on the content, layout, and overall design of the template.

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. In both circumstances, the decision to accept the claim of needing additional time to report is within the discretion of the Administrator, and reporting should occur as soon as possible. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a report by the reporting deadline for reasons outside of their control. The situation where an extension may be warranted due to outages of the EPA's CDX or CEDRI which precludes an owner or operator from accessing the system and submitting required reports is addressed in 40 CFR 63.7751(h) 40 CFR 63.10899(f). The situation where an extension may be warranted due to a force majeure event, which is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents an owner or operator from complying with the requirement

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[29] See *Iron_Steel_Foundry_Semiannual_Template_EEEEE_Draft* and *Iron_Steel_Foundry_Area_Sources_Semiannual_Template_ZZZZZ_Draft* available at Docket ID No. EPA-HQ-OAR-2018-0415.

to submit a report electronically as required by this rule is addressed in 40 CFR 63.7751(i) and 40 CFR 63.10899(g). Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility.

The electronic submittal of the reports addressed in this proposed rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the 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[30] to implement Executive Order 13563 and is in keeping with the EPA's Agency-wide policy[31] developed in response to the White House's Digital Government Strategy.[32] 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*

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

[31] *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*.

[32] *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*.

Air Pollutants (NESHAP) Rules, available in Docket ID Item No. EPA-HQ-OAR-2018-2019-0373.

The EPA is also proposing to amend the implementation and enforcement delegations addressed in 40 CFR 63.7761(c) and 40 CFR 63.10905(c) to stipulate that the authority to approve any alternative to any electronic reporting cannot be delegated.

3. Technical and Editorial Changes

The EPA is proposing one additional editorial correction for 40 CFR part 63, subpart EEEEE, as follows.

- Revise 40 CFR 63.7732(e)(1) to correct the reference to “paragraphs (b)(1)(i) through (v)” to be “paragraphs (e)(1)(i) through (v).”

The EPA is also proposing additional changes that address technical and editorial corrections for 40 CFR part 63, subpart ZZZZZ as follows.

- Revise 40 CFR 63.10885(a)(1) to add the sentence: “Any post-consumer engine blocks, post-consumer oil filters, or oily turnings that are processed and/or cleaned to the extent practicable such that the materials do not include lead components, mercury switches, chlorinated plastics, or free organic liquids can be included in this certification.” This provision was added to the major source NESHAP at 40 CFR 63.7700(b) in the 2008 amendments (73 FR 7218) shortly after the area source NESHAP was promulgated. The requirements in 40 CFR 63.10885(a)(1) were developed based on the provisions in 40 CFR 63.7700(b) and this provision for major source iron and steel foundries should also apply to area source iron and steel foundries.

- Revise 40 CFR 63.10890(c) to correct the reference to “§63.9(h)(1)(i)” to be “§63.9(h)(2)(i).”

- Revise 40 CFR 63.10890(f) to correct the reference to "§63.10(e)" to be "§63.13."
- Revise 40 CFR 63.10897(d)(3) and (g) to replace all instances of "correction action" with "corrective action" to correct typographical errors.
- Revise 40 CFR 63.10899(c) to correct the reference to "§63.10(e)" to be "§63.13."
- Revise the entry for 40 CFR 63.9 in Table 3 to Subpart ZZZZZ to add an explanation in column 4 to read "Except for opacity performance tests." This explanation was included in the major source NESHAP in Table 1 to Subpart EEEEE but was inadvertently not included in the area source NESHAP. This proposed amendment relieves area source foundries of providing notifications of semiannual opacity observations of fugitive emissions from buildings or structures housing foundry operations.

E. What compliance dates are we proposing?

We are proposing two changes that would impact ongoing compliance requirements for 40 CFR part 63, subparts EEEEE and ZZZZZ. As discussed elsewhere in this preamble, we are proposing to add a requirement that initial notifications, performance test results, performance evaluation reports, and the semiannual reports using the new template be submitted electronically. We are also proposing to change the requirements for SSM by removing the exemption from the requirements to meet the standard during SSM periods and by removing the requirement to develop and implement an SSM plan.

Our experience with similar industries that are required to convert reporting mechanisms, install necessary hardware, install necessary software, become familiar with the process of submitting performance test results electronically through the EPA's CEDRI, test these new electronic submission capabilities, reliably employ electronic reporting, and convert logistics of reporting processes to different time-reporting parameters, shows that a time period of a minimum of 90 days, and more typically, 180 days, is generally necessary to successfully complete these changes. Therefore, we are proposing 6 months to transition the periodic reports to electronic reporting through CEDRI. For performance tests, most stack testing contractors already have electronic reporting capabilities and have used EPA's electronic reporting system. Therefore, we are proposing that performance test reports and performance evaluation reports be submitted electronically for tests conducted after the effective date of the final rule. These reports are due within 60 days of the completion of the performance test so facilities will have up to 60 days (and generally longer since the performance test and performance evaluations are required annually or once every 5 years). We are proposing that the elimination of SSM exemptions will become effective on the effective date of the rule. We understand that the regulated facility generally requires some time period to read and understand the amended rule requirements; 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; adjust parameter monitoring and recording systems to accommodate revisions; and update their operations to reflect the revised requirements. However, most foundry processes are batch processes, so the control systems are designed to accommodate differing operations, including startup and shutdown. We do not expect that the proposed SSM revisions will require any new control systems and very few, if any, operational changes. Additionally, much of the revisions are eliminating additional records and reports related to SSM. These changes can be implemented quickly by the foundry owner or operator at no cost (and likely some cost savings) and if these records are still collected after the final rule is promulgated, the facility will still be in compliance with the proposed requirements. Finally, this proposal serves to provide notification to the iron and steel foundry industry of the EPA's intent to require compliance with the applicable standards at all times, including periods of SSM, and the evaluations and adjustments needed to comply with the standards at all times can be conducted based on this proposal. Therefore, the EPA is proposing to require compliance with the SSM revisions for 40 CFR part 63, subparts EEEEE and ZZZZZ, upon the effective date of the final rules. We solicit comment on this proposed compliance period, and we specifically request submission of information from sources in this source category regarding specific actions that would need to be undertaken to comply with the proposed amended requirements and the time needed to make the adjustments for compliance with any of the revised requirements. We note that information provided may result in changes to the proposed compliance date.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected sources?

There are approximately 45 major source iron and steel foundries and approximately 390 area source iron and steel foundries affected by this proposal. In this proposal, we have included editorial corrections, electronic reporting requirements, and changes in policies regarding SSM. Because we are proposing no new requirements or controls in this RTR, no iron and steel foundries are adversely impacted by these proposed revisions. In fact, the impacts to iron and steel foundries from this proposal are expected to be minimal.

B. What are the air quality impacts?

Because we are not proposing revisions to the emission limitations, we do not anticipate any quantifiable air quality impacts as a result of the proposed amendments. However, we anticipate that the proposed requirements, including the removal of the SSM exemption and addition of periodic emissions testing, may reduce some unquantified emissions by ensuring proper operation of control devices during SSM periods.

C. What are the cost impacts?

We expect that the proposed amendments will have minimal cost impacts for iron and steel foundries. The proposed editorial corrections will have no cost impacts. The proposed revisions to use electronic reporting effectively replace existing requirements to mail in copies of the required reports and notifications. We expect that the electronic system will save some time and expense compared to printing and mailing the required reports and notifications; however, it will take some time for foundry owners and operators to review the new electronic notification and reporting form, review their recordkeeping processes, and potentially revise their processes to more efficiently complete their semiannual reports. There may also be initial costs associated with electronic reporting of performance tests. We are also proposing revisions to SSM provisions. Again, these revisions are expected to have minimal impact on affected iron and steel foundries. For major source iron and steel foundries, we are eliminating the need to develop a SSM plan or submit an immediate SSM report when the SSM plan is not followed and there is an exceedance of an applicable emission limitation. While this may reduce some burden, iron and steel foundry owners and operators will still need to assess their operations and make plans to achieve the emission limitations at all times, including periods of startup, shutdown, or malfunction.

We estimate the initial one-time costs associated with the proposed electronic reporting and SSM revisions would be $96,000 for the 45 major source iron and steel foundries subject to 40 CFR part 63, subpart EEEEE, or approximately $2,130 per major source foundry. For area source foundries subject to 40 CFR part 63, subpart ZZZZZ, we estimate the total initial one-time costs would be $375,000 for the 390 area sources. The average one-time cost for an area source foundry classified as a small area source foundry is estimated to be $732 per foundry; the average one-time cost for an area source foundry classified as a large area source foundry is estimated to be $1,920 per foundry. Once electronic reporting is adopted, we expect costs savings to be realized for the ongoing report submissions. We estimate that a reduction in the time to prepare and submit semiannual reports of 1 to 2 hours per report would off-set the initial one-time costs within the first 3 years after implementation of the electronic reporting. Consequently, we consider the cost impacts associated with the proposed electronic reporting provisions to be minimal. Also, we expect there would only be a small number of immediate SSM reports each year, so that the cost savings associated with eliminating the immediate SSM reports each year would be under $500 nationwide. Consequently, we estimate the total one-time cost impacts of the proposed electronic reporting and SSM revisions will be approximately $470,000 across all foundries (area and major sources) and that these costs will largely be offset within the first 3 years of implementation.

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. Because the costs associated with the proposed revisions are minimal, no significant economic impacts from the proposed amendments are anticipated.

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. Specifically, the proposed amendments revise the standards such that they apply at all times. Additionally, the proposed amendments requiring electronic submittal of initial notifications, performance test results, and semiannual 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 less 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/iron-and-steel-foundries-national-emissions-standards-hazardous-air. 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-2019-0373 (through the method described in the **ADDRESSES** section of this preamble).

5. If you are providing comments on a single facility or multiple facilities, you need only submit one file for all facilities. The file should contain all suggested changes for all sources at that facility (or facilities). We request that all data revision comments be submitted in the form of updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/iron-and-*

steel-foundries-national-emissions-standards-hazardous-air.

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 Regulation 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 OMB under the PRA, as described for each source category covered by this proposal in sections C.1 and C.2 below.

1. Iron and Steel Foundries Major Sources

The information collection request (ICR) document that the EPA prepared has been assigned EPA ICR number 2096.07. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

We are proposing amendments that require electronic reporting, remove the malfunction exemption, and impose other revisions that affect reporting and recordkeeping for iron and steel foundries major source facilities. This information would be collected to assure compliance with 40 CFR part 63, subpart EEEEE.

Respondents/affected entities: Owners or operators of iron and steel foundries major source facilities.

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

Estimated number of respondents: 45 (total).

Frequency of response: Initial, semiannual, and annual.

Total estimated burden: The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be 15,000 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be $1,400,000 (per year), which includes $206,000 annualized capital or operation and maintenance costs.

2. Iron and Steel Foundries Area Sources

The ICR document that the EPA prepared has been assigned EPA ICR number 2267.05. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

We are proposing amendments that require electronic reporting, remove the malfunction exemption, and impose other revisions that affect reporting and recordkeeping for iron and steel foundries area source facilities. This information would be collected to assure compliance with 40 CFR part 63, subpart ZZZZZ.

Respondents/affected entities: Owners or operators of iron and steel foundries area source facilities.

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

Estimated number of respondents: 390 (total), 75 of these are classified as large iron and steel foundries and 315 are classified as small iron and steel foundries.

Frequency of response: Initial, semiannual, and annual.

Total estimated burden: The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be 14,400 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be $1,150,000 (per year); there are no annualized capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to *OIRA_submission@omb.eop.gov*, Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The EPA will respond to any ICR-related comments in the final rule.

D. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. Based on the Small Business Administration size category for this source category, no small entities are subject to this action.

E. Unfunded Mandates Reform Act (UMRA)

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

F. Executive Order 13132: Federalism

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

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

This action does not have tribal implications as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments, on the relationship between the federal government and Indian Tribes, or on the distribution of power and responsibilities between the federal government and Indian Tribes. No tribal governments own facilities subject to the NESHAP. 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 and IV of this preamble and further documented in the following risk report titled *Residual Risk Assessment for* *the Iron and Steel Foundries Major Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which can be found in the docket for this action.

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 section IV.A.3 of this preamble and the technical report titled *Risk and Technology Review—Analysis of Demographic Factors for Populations Living Near the Iron and Steel Foundries Source Category*, which is located in the public docket for this action.

We examined the potential for any environmental justice issues that might be associated with the source category, by performing a demographic analysis of the population close to the facilities. In this analysis, we evaluated the distribution of HAP-related cancer and noncancer risks from the 40 CFR part 63, subpart EEEEE, source category across different social, demographic, and economic groups within the populations living near facilities identified as having the highest risks. The methodology and the results of the demographic analyses are included in the technical report, *Risk and Technology Review—Analysis of Demographic Factors for Populations Living Near the Iron and Steel Foundries Source Category*, available in the docket for this action.

The results of the 40 CFR part 63, subpart EEEEE, source category demographic analysis indicate that emissions from the Iron and Steel Foundries major source category expose approximately 144,000 people to a cancer risk at or above 1-in-1 million and none exposed to a chronic noncancer TOSHI greater than 1. The percentages of the at-risk population in each demographic group (except for "African American," "Below Poverty Level," and "Over 25 and without High School Diploma") are similar to or lower than their respective nationwide percentages. The African American population exposed to a cancer risk at or above 1-in-1 million due to iron and steel foundries major source emissions is 4 percent above the national average. Likewise, populations living "Below Poverty Level" and "Over 25 and without High School Diploma" are exposed to cancer risk above 1-in-1 million, 6 and 4 percent above the national average, respectively.

List of Subjects in 40 CFR Part 63

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

______________________________.
Dated:

____
Andrew R. Wheeler,

Administrator.

For the reasons set forth in the preamble, the EPA proposes to amend 40 CFR part 63 as follows:

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

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

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

Subpart EEEEE—National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries

2. Section 63.7710 is amended by revising paragraph (a) to read as follows:

§63.7710 What are my operation and maintenance requirements?

(a) You must always operate and maintain your iron and steel foundry, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart.

* * * * *

3. Section 63.7720 is amended by revising paragraph (a) and removing and reserving paragraph (c) to read as follows:

§63.7720 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations, work practice standards, and operation and maintenance requirements in this subpart at all times.

* * * * *

(c) Reserved.

4. Section 63.7732 is amended by revising paragraph (a) and revising paragraph (e)(1) introductory text to read as follows:

§63.7732 What test methods and other procedures must I use to demonstrate initial compliance with the emissions limitations?

(a) You must conduct each performance test that applies to your iron and steel foundry based on your selected compliance alternative, if applicable, according to the requirements in paragraphs (b) through (i) of this section. Each performance test must be conducted under conditions representative of normal operations. Normal operating conditions exclude periods of startup and shutdown. You may not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

* * * * *

(e) * * *

(1) Determine the VOHAP concentration for each test run according to the test methods in 40 CFR part 60, appendix A, that are specified in paragraphs (e)(1)(i) through (v) of this section.

* * * * *

5. Section 63.7746 is amended by removing and reserving paragraph (b) to read as follows:

§63.7746 What other requirements must I meet to demonstrate continuous compliance?

* * * * *

(b) Reserved.

6. Section 63.7751 is amended by:

a. Removing and reserving paragraph (b)(4);

b. Revising paragraphs (b)(6) through (8);

c. Removing and reserving paragraph (c); and

d. Adding paragraphs (e) through (i).

The revisions and additions read as follows:

§63.7751 What reports must I submit and when?

* * * * *

(b) * * *

(4) Reserved.

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(6) If there were no periods during which a continuous monitoring system (including a CPMS or CEMS) was inoperable or out-of-control as specified by §63.8(c)(7), a statement that there were no periods during which the CPMS was inoperable or out-of-control during the reporting period.

(7) For each affected source or equipment for which there was a deviation from an emissions limitation (including an operating limit, work practice standard, or operation and maintenance requirement) that occurs at an iron and steel foundry during the reporting period, the compliance report must contain the information specified in paragraphs (b)(7)(i) through (iii) of this section. This requirement includes periods of startup, shutdown, and malfunction.

(i) A list of the affected source or equipment and the total operating time of each emissions source during the reporting period.

(ii) For each deviation from an emissions limitation (including an operating limit, work practice standard, or operation and maintenance requirement) that occurs at an iron and steel foundry during the reporting period, report:

(A) The date, start time, duration (in hours), and cause of each deviation (characterized as either startup, shutdown, control equipment problem, process problem, other known cause, or unknown cause, as applicable) and the corrective action taken; and

(B) An estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iii) A summary of the total duration (in hours) of the deviations that occurred during the reporting period by cause (characterized as startup, shutdown, control equipment problems, process problems, other known causes, and unknown causes) and the cumulative duration of deviations during the reporting period across all causes both in hours and as a percent of the total source operating time during the reporting period.

(8) For each continuous monitoring system (including a CPMS or CEMS) used to comply with the emissions limitation or work practice standard in this subpart that was inoperable or out-of-control during any portion of the reporting period, you must include the information specified in paragraphs (b)(8)(i) through (vi) of this section. This requirement includes periods of startup, shutdown, and malfunction.

(i) A brief description of the continuous monitoring system, including manufacturer and model number.

(ii) The date of the latest continuous monitoring system certification or audit.

(iii) A brief description and the total operating time of the affected source or equipment that is monitored by the continuous monitoring system during the reporting period.

(iv) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(v) For each period for which the continuous monitoring system was inoperable or out-of-control during the reporting period, report:

(A) The date, start time, and duration (in hours) of the deviation;

(B) The type of deviation (inoperable or out-of-control); and

(C) The cause of deviation (characterized as monitoring system malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and unknown causes, as applicable) and the corrective action taken.

(vi) A summary of the total duration (in hours) of the deviations that occurred during the reporting period by cause (characterized as monitoring system malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and unknown causes) and the cumulative duration of deviations during the reporting period across all causes both in hours and as a percent of the total source operating time during the reporting period.

(c) Reserved,

* * * * *

(e) Compliance report submission requirements. Prior to **[INSERT DATE 6 MONTHS AFTER DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER]**, you must submit semiannual compliance reports to the Administrator as specified in §63.13. Beginning on **[INSERT DATE 6 MONTHS AFTER DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER]**, you must submit all subsequent semiannual compliance reports to the EPA via the Compliance and Emissions Data Reporting

Interface (CEDRI), which can be accessed through the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). You must use the appropriate electronic report template on the CEDRI website (*https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri*) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. If you claim some of the information required to be submitted via CEDRI is confidential business information (CBI), submit a complete report, including information claimed to be CBI, to the EPA. The report must be generated using the appropriate form on the CEDRI website or an alternate electronic file consistent with the extensible markup language (XML) schema listed on the CEDRI website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(f) Performance test results submission requirements. Within 60 days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedures specified in paragraphs (f)(1) through (3) of this section.

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

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

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

(3) *Confidential business information (CBI)*. If you claim some of the information submitted under paragraph (e)(1) of this section is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in paragraph (f)(1) of this section.

(g) Performance evaluation results submission requirements. Within 60 days after the date of completing each continuous monitoring system (CMS) performance evaluation (as defined in §63.2), you must submit the results of the performance evaluation following the procedures specified in paragraphs (g)(1) through (3) of this section.

(1) *Performance evaluations of CMS measuring relative accuracy test audit (RATA) pollutants that are supported by the EPA's ERT as listed on the EPA's ERT website at the time of*

the evaluation. Submit the results of the performance evaluation to the EPA via CEDRI, which can be accessed through the EPA's CDX. The data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, you may submit an electronic file consistent with the XML schema listed on the EPA's ERT website.

(2) *Performance evaluations of CMS measuring RATA pollutants that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the evaluation*. The results of the performance evaluation must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) *Confidential business information (CBI)*. If you claim some of the information submitted under paragraph (f)(1) of this section is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in paragraph (g)(1) of this section.

(h) Claims of EPA system outage. If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (h)(1) through (7) of this section.

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

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

(3) The outage may be planned or unplanned.

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

(5) You must provide to the Administrator a written description identifying:

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

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

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

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

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

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

(i) Claims of force majeure. If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with the reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (i)(1) through (5) of this section.

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

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

(3) You must provide to the Administrator:

(i) A written description of the force majeure event;

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

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

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

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

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

7. Section 63.7752 is amended by:

a. Revising paragraph (a)(2);

b. Revising paragraphs (b)(2) and (4); and

c. Adding paragraphs (d) and (e).

The revisions and additions read as follows:

§63.7752 What records must I keep?

(a) * * *

(2) Records of required maintenance performed on the air pollution control and monitoring equipment as required by §63.10(b)(2)(iii).

* * * * *

(b) * * *

(2) Records of the site-specific performance evaluation test plan required under §63.8(d)(2) for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, you shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan as required under §63.8(d)(2)(vi).

* * * * *

(4) Records of the date and time that each deviation started and stopped.

* * * * *

(d) You must keep the following records for each failure to meet an emissions limitation (including operating limit), work practice standard, or operation and maintenance requirement in this subpart.

(1) Date, start time and duration of each failure.

(2) List of the affected sources or equipment for each failure, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(3) Actions taken to minimize emissions in accordance with §63.7710(a), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(e) Any records required to be maintained by this part that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

8. Section 63.7761 is amended by revising paragraph (c) introductory text and adding paragraph (c)(5) to read as follows:

§63.7761 Who implements and enforces this subpart?

* * * * *

(c) The authorities that cannot be delegated to state, local, or tribal agencies are specified in paragraphs (c)(1) through (5) of this section.

* * * * *

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

9. Section 63.7765 is amended, in alphabetical order, by revising the definitions of "Deviation" and "Off blast" to read as follows:

§63.7765 What definitions apply to this subpart?

* * * * *

Deviation means any instance in which an affected source or an owner or operator of such an affected source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emissions limitation (including operating limits), work practice standard, or operation and maintenance requirement; or

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any iron and steel foundry required to obtain such a permit.

A deviation is not always a violation. The determination of whether a deviation constitutes a violation of the standard is up to the discretion of the entity responsible for enforcement of the standards.

* * * * *

Off blast means those periods of cupola operation when the cupola is not actively being used to produce molten metal. Off blast conditions include cupola startup when air is introduced to the cupola to preheat the sand bed and other cupola startup procedures. Off blast conditions also include idling conditions when the blast air is turned off or down to the point that the cupola does not produce additional molten metal.

* * * * *

10. Table 1 to Subpart EEEEE is revised to read as follows:

Table 1 to Subpart EEEEE of Part 63—Applicability of General Provisions to Subpart EEEEE

[As stated in §63.7760, you must meet each requirement in the following table that applies to you.]

Citation	Subject	Applies to Subpart EEEEE?	Explanation
63.1	Applicability	Yes	
63.2	Definitions	Yes	
63.3	Units and abbreviations	Yes	
63.4	Prohibited activities	Yes	
63.5	Construction/reconstruction	Yes	
63.6(a)-(d)	Compliance applicability and dates	Yes	
63.6(e)	Operating and maintenance requirements	No	Subpart EEEEE specifies operating and maintenance requirements.
63.6(f)(1)	Applicability of non-opacity emission standards	No	Subpart EEEEE specifies applicability of non-opacity emission standards.
63.6(f)(2)-(3)	Methods and finding of compliance with non-opacity emission standards	Yes	
63.6(g)	Use of an alternative nonopacity emission standard	Yes	
63.6(h)(1)	Applicability of opacity and visible emissions standards	No	Subpart EEEEE specifies applicability of opacity and visible emission standards.
63.6(h)(2)-(9)	Methods and other requirements for opacity and visible emissions standards	Yes	
63.6(i)-(j)	Compliance extension and Presidential compliance exemption	Yes	
63.7(a)(1)-(a)(2)	Applicability and performance test dates	No	Subpart EEEEE specifies applicability and performance test dates.

63.7(a)(3)-(4)	Administrators rights to require a performance test and force majeure provisions	Yes	
63.7(b)-(d)	Notification of performance test, quality assurance program, and testing facilities	Yes	
63.7(e)(1)	Performance test conditions	No	Subpart EEEEE specifies performance test conditions.
63.7(e)(2)-(4), (f)-(h)	Other performance testing requirements	Yes	
63.8(a)(1)-(a)(3), (b), (c)(1)(ii), (c)(2)-(c)(3), (c)(6)-(c)(8), (d)(1)-(d)(2)	Monitoring requirements	Yes	
63.8(a)(4)	Additional monitoring requirements for control devices in §63.11	No	Subpart EEEEE does not require flares.
63.8(c)(1)(i), (c)(1)(iii)	Operation and maintenance of continuous monitoring systems	No	40 CFR 63.8 requires good air pollution control practices and sets out the requirements of a quality control program for monitoring equipment
63.8(c)(4)	Continuous monitoring system (CMS) requirements	No	Subpart EEEEE specifies requirements for operation of CMS and CEMS.
63.8(c)(5)	Continuous opacity monitoring system (COMS) Minimum Procedures	No	Subpart EEEEE does not require COMS.
63.8(d)(3)	Quality control program	No.	Subpart EEEEE specifies records that must be kept associated with site-specific performance evaluation test plan.
63.8(e), (f)(1)-(f)(6), (g)(1)-(g)(4)	Performance evaluations and alternative monitoring	Yes	Subpart EEEEE specifies requirements for alternative monitoring systems.

63.8(g)(5)	Data reduction	No	Subpart EEEEE specifies data reduction requirements.
63.9	Notification requirements	Yes	Except: for opacity performance tests, Subpart EEEEE allows the notification of compliance status to be submitted with the semiannual compliance report or the semiannual part 70 monitoring report.
63.10(a),(b)(1), (b)(2)(iii) and (vi)-(xiv), (b)(3), (c)(1)-(6), (c)(9)-(14), (d)(1)-(4), (e)(1)-(2), (f)	Recordkeeping and reporting requirements	Yes	Additional records for CMS in §63.10(c)(1)-(6), (9)-(15) apply only to CEMS.
63.10(b)(2)(i), (ii), (iv) and (v)	Recordkeeping for startup, shutdown, and malfunction events	No	
63.10(c)(7), (8) and (15)	Records of excess emissions and parameter monitoring exceedances for CMS	No	Subpart EEEEE specifies records requirements.
63.10(d)(5)	Periodic startup, shutdown, and malfunction reports	No	
63.10(e)(3)	Excess emissions reports	No	Subpart EEEEE specifies reporting requirements.
63.10(e)(4)	Reporting COMS data	No	Subpart EEEEE data does not require COMS.
63.11	Control device requirements	No	Subpart EEEEE does not require flares.
63.12	State authority and delegations	Yes	
63.13-63.15	Addresses of State air pollution control agencies and EPA regional offices. Incorporation by reference. Availability of information and confidentiality	Yes	

Subpart ZZZZZ—National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources

11. Section 63.10885 is amended by revising paragraph (a)(1) to read as follows:

63.10885 What are my management practices for metallic scrap and mercury switches?

(a) * * *

(1) *Restricted metallic scrap.* You must prepare and operate at all times according to written material specifications for the purchase and use of only metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, post-consumer oil filters, oily turnings, lead components, chlorinated plastics, or free liquids. For the purpose of this subpart, "free liquids" is defined as material that fails the paint filter test by EPA Method 9095B, "Paint Filter Liquids Test" (revision 2), November 2004 (incorporated by reference—see §63.14). The requirements for no free liquids do not apply if the owner or operator can demonstrate that the free liquid is water that resulted from scrap exposure to rain. Any post-consumer engine blocks, post-consumer oil filters, or oily turnings that are processed and/or cleaned to the extent practicable such that the materials do not include lead components, mercury switches, chlorinated plastics, or free organic liquids can be included in this certification.

* * * * *

12. Section 63.10890 is amended by:

a. Revising paragraph (c) introductory text;

b. Revising paragraphs (d), (e)(3), (f) and (i); and

c. Adding paragraph (j).

The revisions and additions read as follows:

§63.10890 What are my management practices and compliance requirements?

* * * * *

(c) You must submit a notification of compliance status according to §63.9(h)(2)(i). You must send the notification of compliance status before the close of business on the 30th day after the applicable compliance date specified in §63.10881. The notification must include the following compliance certifications, as applicable:

* * * * *

(d) As required by §63.10(b)(1), you must maintain files of all information (including all reports and notifications) for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche. Any records required to be maintained by this part that are submitted electronically via the EPA's Compliance and Emissions Data Reporting Interface (CEDRI) may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

(e) * * *

(3) If you are subject to the requirements for a site-specific plan for mercury switch removal under §63.10885(b)(1), you must maintain records of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, and an estimate of the percent of mercury switches recovered.

* * * * *

(f) You must submit semiannual compliance reports to the Administrator according to the requirements in §63.10899(c), (f), and (g), except that §63.10899(c)(5) and (7) do not apply.

* * * * *

(i) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

(j) You must comply with the following requirements of the General Provisions (40 CFR part 63, subpart A): §§63.1 through 63.5; §63.6(a), (b), and (c); §63.9; §63.10(a), (b)(1), (b)(2)(xiv), (b)(3), (d)(1), (d)(4), and (f); and §§63.13 through 63.16. Requirements of the General Provisions not cited in the preceding sentence do not apply to the owner or operator of a new or existing affected source that is classified as a small foundry.

13. Section 63.10896 is amended by adding paragraph (c) to read as follows:

§63.10896 What are my operation and maintenance requirements?

* * * * *

(c) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

14. Section 63.10897 is amended by adding paragraph (d)(3) introductory text and revising paragraph (g) to read as follows:

§63.10897 What are my monitoring requirements?

* * * * *

(d) * * *

(3) In the event that a bag leak detection system alarm is triggered, you must initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete corrective action as soon as practicable, but no later than 10 calendar days from the date of the alarm. You must record the date and time of each valid alarm, the time you initiated corrective action, the corrective action taken, and the date on which corrective action was completed. Corrective actions may include, but are not limited to:

* * * * *

(g) In the event of an exceedance of an established emissions limitation (including an operating limit), you must restore operation of the emissions source (including the control device and associated capture system) to its normal or usual manner or operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the exceedance. You must record the date and time corrective action was initiated, the corrective action taken, and the date corrective action was completed.

* * * * *

15. Section 63.10898 is amended by revising paragraph (c) to read as follows:

§63.10898 What are my performance test requirements?

* * * * *

(c) You must conduct each performance test under conditions representative of normal operations according to the requirements in Table 1 to this subpart and paragraphs (d) through (g) of this section. Normal operating conditions exclude periods of startup and shutdown. You may not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

* * * * *

16. Section 63.10899 is amended is amended by:

a. Revising paragraph (a);

b. Revising paragraph (b) introductory text and paragraph (b)(2);

c. Adding paragraphs (b)(14) and (15);

d. Revising paragraph (c); and

e. Adding paragraphs (e) through (g).

The revisions and additions read as follows:

§63.10899 What are my recordkeeping and reporting requirements?

(a) As required by §63.10(b)(1), you must maintain files of all information (including all reports and notifications) for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks or flash drives, on magnetic tape disks, or on microfiche. Any records required to be maintained by this part that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

* * * * *

(b) In addition to the records required by 40 CFR 63.10(b)(2)(iii), (vi) through (xiv), and (b)(3), you must keep records of the information specified in paragraphs (b)(1) through (15) of this section.

* * * * *

(2) If you are subject to the requirements for a site-specific plan for mercury under §63.10885(b)(1), you must maintain records of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, and an estimate of the percent of mercury switches recovered.

* * * * *

(14) You must keep records of the site-specific performance evaluation test plan required under §63.8(d)(2) for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, you shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan as required under §63.8(d)(2)(vi).

(15) You must keep the following records for each failure to meet an emissions limitation (including operating limit), work practice standard, or operation and maintenance requirement in this subpart.

(i) Date, start time, and duration of each failure;

(ii) List of the affected sources or equipment for each failure, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iii) Actions taken to minimize emissions in accordance with §63.10896(c), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(c) Prior to **[DATE 6 MONTHS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must submit semiannual compliance reports to the Administrator according to the requirements in §63.13. Beginning on **[DATE 6 MONTHS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must submit all subsequent semiannual compliance reports to the EPA via the CEDRI, which can be accessed through the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). You must use the appropriate electronic report template on the CEDRI website (*https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri*) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. If you claim some of the information required to be submitted via CEDRI is confidential business information (CBI), submit a complete report, including information claimed to be CBI, to the EPA. The report must be generated using the appropriate form on the CEDRI website or an alternate electronic file consistent with the extensible markup language (XML) schema listed on the CEDRI website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S.

EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph. The reports must include the information specified in paragraphs (c)(1) through (3) of this section and, as applicable, paragraphs (c)(4) through (9) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If there were no deviations from any emissions limitations (including operating limits, pollution prevention management practices, or operation and maintenance requirements), a statement that there were no deviations from the emissions limitations, pollution prevention management practices, or operation and maintenance requirements during the reporting period.

(5) If there were no periods during which a continuous monitoring system (including a CPMS or CEMS) was inoperable or out-of-control as specified by §63.8(c)(7), a statement that there were no periods during which the CPMS was inoperable or out-of-control during the reporting period.

(6) For each affected source or equipment for which there was a deviation from an emissions limitation (including an operating limit, pollution prevention management practice, or operation and maintenance requirement) that occurs at an iron and steel foundry during the reporting period, the compliance report must contain the information specified in paragraphs (c)(6)(i) through (iii) of this section. This requirement includes periods of startup, shutdown, and malfunction.

(i) A list of the affected source or equipment and the total operating time of each emissions source during the reporting period.

(ii) For each deviation from an emissions limitation (including an operating limit, pollution prevention management practice, or operation and maintenance requirement) that occurs at an iron and steel foundry during the reporting period, report:

(A) The date, start time, duration (in hours), and cause of each deviation (characterized as either startup, shutdown, control equipment problem, process problem, other known cause, or unknown cause, as applicable) and the corrective action taken; and

(B) An estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iii) A summary of the total duration (in hours) of the deviations that occurred during the reporting period by cause (characterized as startup, shutdown, control equipment problems, process problems, other known causes, and unknown causes) and the cumulative duration of deviations during the reporting period across all causes both in hours and as a percent of the total source operating time during the reporting period.

(7) For each continuous monitoring system (including a CPMS or CEMS) used to comply with the emissions limitation or work practice standard in this subpart that was inoperable or out-of-control during any portion of the reporting period, you must include the information specified in paragraphs (c)(7)(i) through (vi) of this section. This requirement includes periods of startup, shutdown, and malfunction.

(i) A brief description of the continuous monitoring system, including manufacturer and model number.

(ii) The date of the latest continuous monitoring system certification or audit.

(iii) A brief description and the total operating time of the affected source or equipment that is monitored by the continuous monitoring system during the reporting period.

(iv) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(v) For each period for which the continuous monitoring system was inoperable or out-of-control during the reporting period, report:

(A) The date, start time, and duration (in hours) of the deviation;

(B) The type of deviation (inoperable or out-of-control); and

(C) The cause of deviation (characterized as monitoring system malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and unknown causes, as applicable) and the corrective action taken.

(vi) A summary of the total duration (in hours) of the deviations that occurred during the reporting period by cause (characterized as monitoring system malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and unknown causes) and the cumulative duration of deviations during the reporting period across all causes both in hours and as a percent of the total source operating time during the reporting period.

(8) Identification of which option in §63.10885(b) applies to you. If you comply with the mercury requirements in §63.10885(b) by using one scrap provider, contract, or shipment subject to one compliance provision and others subject to another compliance provision different, provide an identification of which option in §63.10885(b) applies to each scrap provider, contract, or shipment.

(9) If you are subject to the requirements for a site-specific plan for mercury under §63.10885(b)(1), include:

(i) The number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, an estimate of the percent of mercury switches recovered;

(ii) A certification that the recovered mercury switches were recycled at RCRA-permitted facilities; and

(iii) A certification that you have conducted periodic inspections or taken other means of corroboration as required under §63.10885(b)(1)(ii)(C).

* * * * *

(e) Within 60 days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedures specified in paragraphs (e)(1) through (3) of this section.

(1) *Data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test*. Submit the results of the performance test to the EPA via the CEDRI, which can be accessed through the EPA's CDX (*https://cdx.epa.gov/*). The data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, you may submit an electronic file consistent with the XML schema listed on the EPA's ERT website.

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

schema listed on the EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) *Confidential business information (CBI)*. If you claim some of the information submitted under paragraph (e)(1) of this section is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in paragraph (e)(1) of this section.

(f) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (f)(1) through (7) of this section.

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

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

(3) The outage may be planned or unplanned.

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

(5) You must provide to the Administrator a written description identifying:

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

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

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

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

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

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

(g) Claims of force majeure. If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with the reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (g)(1) through (5) of this section.

(1) You may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the

control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.*, hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.*, large scale power outage).

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

(3) You must provide to the Administrator:

(i) A written description of the force majeure event;

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

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

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

17. Section 63.10905 is amended by revising paragraph (c) introductory text and adding paragraph (c)(7) to read as follows:

§63.10905 Who implements and enforces this subpart?

* * * * *

(c) The authorities that cannot be delegated to State, local, or tribal agencies are specified in paragraphs (c)(1) through (7) of this section.

* * * * *

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

18. Section 63.10906 is amended by revising, in alphabetical order, the definition of "Deviation" to read as follows:

§63.10906 What definitions apply to this subpart?

* * * * *

Deviation means any instance in which an affected source or an owner or operator of such an affected source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emissions limitation (including operating limits), management practice, or operation and maintenance requirement; or

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any iron and steel foundry required to obtain such a permit.

* * * * *

19. Table 3 to Subpart ZZZZZ is revised to read as follows:

Table 3 to Subpart ZZZZZ of Part 63—Applicability of General Provisions to New and Existing Affected Sources Classified as Large Foundries

As required in §63.10900(a), you must meet each requirement in the following table that applies to you:

Citation	**Subject**	**Applies to large foundry?**	**Explanation**
63.1	Applicability	Yes.	
63.2	Definitions	Yes.	
63.3	Units and abbreviations	Yes.	

63.4	Prohibited activities	Yes.	
63.5	Construction/reconstruction	Yes.	
63.6(a)-(d)	Compliance applicability and dates	Yes.	
63.6(e)	Operating and maintenance requirements	No.	Subpart ZZZZZ specifies operating and maintenance requirements.
63.6(f)(1)	Applicability of non-opacity emission standards	No.	Subpart ZZZZZ specifies applicability of non-opacity emission standards.
63.6(f)(2)-(3)	Methods and finding of compliance with non-opacity emission standards	Yes.	
63.6(g)	Use of an alternative nonopacity emission standard	Yes.	
63.6(h)(1)	Applicability of opacity and visible emissions standards	No.	Subpart ZZZZZ specifies applicability of opacity and visible emission standards
63.6(h)(2)-(9)	Methods and other requirements for opacity and visible emissions standards	Yes.	
63.6(i)(i)-(j)	Compliance extension and Presidential compliance exemption	Yes.	
63.7(a)(1)-(2)	Applicability and performance test dates	No.	Subpart ZZZZZ specifies applicability and performance test dates.
63.7(a)(3)-(4)	Administrators rights to require a performance test and force majeure provisions	Yes.	
63.7(b)-(d)	Notification of performance test, quality assurance program, and testing facilities	Yes.	
63.7(e)(1)	Performance test conditions	No.	Subpart ZZZZZ specifies performance test conditions.
63.7(e)(2)-(4), (f)-(h)	Other performance testing requirements	Yes.	

63.8(a)(1)-(a)(3), (b), (c)(1)(ii), (c)(2)-(c)(3), (c)(6)-(c)(8), (d)(1)-(d)(2), (e), (f)(1)-(f)(6), (g)(1)-(g)(4)	Monitoring requirements	Yes.	
63.8(a)(4)	Additional monitoring requirements for control devices in §63.11	No.	
63.8(c)(1)(i), (c)(1)(iii)	Operation and maintenance of continuous monitoring systems	No.	40 CFR 63.8 requires good air pollution control practices and sets out the requirements of a quality control program for monitoring equipment
63.8(c)(4)	Continuous monitoring system (CMS) requirements	No.	
63.8(c)(5)	Continuous opacity monitoring system (COMS) minimum procedures	No.	
63.8(d)(3)	Quality control program	No.	Subpart ZZZZZ specifies records that must be kept associated with site-specific performance evaluation test plan.
(e), (f)(1)-(f)(6), (g)(1)-(g)(4)	Performance evaluations and alternative monitoring	Yes.	
63.8(g)(5)	Data reduction	No.	
63.9	Notification requirements	Yes.	Except for opacity performance tests.
63.10(a), (b)(1),(b)(2)(xii) - (b)(2)(xiv), (b)(3), (d)(1)-(4), (e)(1)-(2), (f)	Recordkeeping and reporting requirements	Yes.	
63.10(b)(2)(i)-(xi)	Malfunction and CMS records	No.	
63.10(c)	Additional records for CMS	No.	Subpart ZZZZZ specifies records requirements.
63.10(d)(5)	Periodic startup, shutdown, and malfunction reports	No.	

63.10(e)(3)	Excess emissions reports	No.	Subpart ZZZZZ specifies reporting requirements.
63.10(e)(4)	Reporting COMS data	No.	
63.11	Control device requirements	No.	
63.12	State authority and delegations	Yes.	
63.13-63.16	Addresses of State air pollution control agencies and EPA regional offices. Incorporation by reference. Availability of information and confidentiality. Performance track provisions	Yes.	