6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2002-0083; FRL-5919.1-01-OAR]

RIN 2060-AV82

National Emission Standards for Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing Facilities Technology Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is proposing amendments to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, as required by the Clean Air Act (CAA). To complete the required CAA section 112(d)(6) technology review promulgated on July 13, 2020, the EPA is proposing standards to regulate HAP emissions from five unmeasured fugitive and intermittent particulate (UFIP) sources, some of which are also referred to as "fugitive" sources, that are currently not regulated by the NESHAP, as follows: Bell Leaks, Unplanned Bleeder Valve Openings, Planned Bleeder Valve Openings, Slag Pits, and Beaching. Also, for sinter plants we are proposing standards for the following five currently unregulated HAP: carbonyl sulfide (COS), carbon disulfide (CS_2), mercury (Hg), hydrochloric acid (HCl), and hydrogen fluoride (HF); for blast furnace (BF) stoves and basic oxygen process furnaces (BOPFs), we are proposing standards for the following three unregulated pollutants: total hydrocarbons (THC),

HCl, and dioxins/furans (D/F); and for BFs, we are proposing standards for the following two unregulated pollutants: THC and HCl.

As an update to the technology review, we are proposing to revise the current BOPF shop fugitive 20 percent opacity limit to a 5 percent opacity limit and require specific work practices; revise the current BF casthouse fugitive 20 percent opacity limit to a 5 percent opacity limit; and revise the current standards for D/F and polycyclic hydrocarbon (PAH) for sinter plants. We are also proposing a fenceline monitoring requirement for chromium (Cr), including a requirement that if a monitor exceeds the proposed Cr action level, the facility will need to conduct a root cause analysis and take corrective action to lower emissions. We solicit comments on all aspects of this proposed action.

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]** by 5:00 p.m. Eastern Time (ET), we will hold a virtual public hearing. See **SUPPLEMENTARY INFORMATION** for information on requesting and registering for a public hearing.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OAR-2002-0083, 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-2002-0083 in the subject line of the message.
- Fax: (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2002-0083.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2002-0083, 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; and email address: *mulrine.phil@epa.gov*.

SUPPLEMENTARY INFORMATION:

Participation in virtual public hearing.

To request a virtual public hearing, contact the public hearing team at (888) 372-8699 or by email at *SPPDpublichearing@epa.gov*. If requested, the hearing will be held via virtual platform on **[INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The hearing will convene at 10:00 a.m. ET and will conclude at 4:00 p.m. ET. The EPA may close a session 15 minutes after the last pre-registered speaker has testified if there are no additional speakers. The EPA will announce further details at *https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission*.

If a public hearing is requested, the EPA will begin pre-registering speakers for the hearing no later than 1 business day after a request has been received. To register to speak at the virtual hearing, please use the online registration form available at *https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission* or contact the public hearing team at (888) 372-8699 or by email at *SPPDpublichearing@epa.gov*. The last day to pre-register to speak at the hearing will be **[INSERT DATE 12 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Prior to the hearing, the EPA will post a general agenda that will list pre-registered speakers in approximate order at: *https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission*.

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

Each commenter will have 4 minutes to provide oral testimony. The EPA encourages commenters to provide the EPA with a copy of their oral testimony electronically (via email) by

emailing it to *mulrine.phil@epa.gov*. The EPA also recommends submitting the text of your oral testimony as written comments to the rulemaking docket.

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

Please note that any updates made to any aspect of the hearing will be posted online at *https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission*. While the EPA expects the hearing to go forward as set forth above, please monitor our website or contact the public hearing team at (888) 372-8699 or by email at *SPPDpublichearing@epa.gov* to determine if there are any updates. The EPA does not intend to publish a document in the *Federal Register* announcing updates.

If you require the services of a translator or a special accommodation such as audio description, please pre-register for the hearing with the public hearing team and describe your needs by **[INSERT DATE 7 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The EPA may not be able to arrange accommodations without advanced notice.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2002-0083. All documents in the docket are listed in *https://www.regulations.gov/*. Although listed, some information is not publicly available, *e.g.*, Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. With the exception of such material, publicly available docket materials are available electronically in Regulations.gov.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2002-0083. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *https://www.regulations.gov/*, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit electronically to *https://www.regulations.gov* any information that you consider to be CBI or other information whose disclosure is restricted by statute. This type of information should be submitted as discussed below.

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

The *https://www.regulations.gov/* website allows you to submit your comment anonymously, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through *https://www.regulations.gov/*, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any

digital storage media you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at *https://www.epa.gov/dockets*.

Submitting CBI. Do not submit information containing CBI to the EPA through *https://www.regulations.gov/*. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, note the docket ID, mark the outside of the digital storage media as CBI and identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in the *Instructions* section of this document. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI and note the docket ID. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR (Code of Federal Regulations) part 2.

Our preferred method to receive CBI is for it to be transmitted electronically using email attachments, File Transfer Protocol (FTP), or other online file sharing services (*e.g.*, Dropbox, OneDrive, Google Drive). Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address *oaqpscbi@epa.gov*, and as described above, should include clear CBI markings and note the docket ID. If assistance is needed with submitting large electronic

files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email *oaqpscbi@epa.gov* to request a file transfer link. If sending CBI information through the postal service, please send it to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2002-0083. The mailed CBI material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope.

Preamble acronyms and abbreviations. Throughout this preamble the use of "we," "us," or "our" is intended to refer to the EPA. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

1-BP	1-bromopropane
ACI	activated carbon injection
BF	blast furnace
BOPF	basic oxygen process furnace
BTF	Beyond-the-Floor
CAA	Clean Air Act
CBI	Confidential Business Information
COS	Carbonyl Sulfide
CFR	Code of Federal Regulations
D/F	dioxins and furans
EAV	equivalent annualized value
EJ	environmental justice
EPA	Environmental Protection Agency
FR	*Federal Register*
HAP	hazardous air pollutant(s)
HCl	hydrochloric acid
HF	hydrogen fluoride
HMTDS	hot metal transfer, desulfurization, and skimming
ICR	Information Collection Request
km	kilometer

MACT	maximum achievable control technology
NESHAP	national emission standards for hazardous air pollutants
NTTAA	National Technology Transfer and Advancement Act
OAQPS	Office of Air Quality Planning and Standards
OMB	Office of Management and Budget
PAH	polycyclic aromatic hydrocarbons
PM	particulate matter
PRA	Paperwork Reduction Act
PV	present value
RFA	Regulatory Flexibility Act
RTR	residual risk and technology review
THC	total hydrocarbon
TEQ	toxic equivalents
tpy	tons per year
UFIP	unmeasured fugitive and intermittent particulate
UMRA	Unfunded Mandates Reform Act
UPL	upper prediction limit
VCS	voluntary consensus standards
VE	visible emissions
VOC	volatile organic compound
WP	work practice

Organization of this document. The information in this preamble is organized as follows below. Section III of this preamble presents a summary of the analytical procedures and decision-making process. Section IV of this preamble describes the majority of the Agency's analytical results, proposed decisions and the rationale for the actions proposed in this action. Other sections include discussion of costs and impacts and the applicable executive orders, and other relevant topics, as outlined in the following table of contents.

Table of Contents

I. General Information

A. Executive Summary

1. Purpose of the Regulatory Action

The EPA set maximum achievable control technology (MACT) standards for the Integrated Iron and Steel Manufacturing Facilities major source category in 2003 (68 FR 27645) under 40 CFR part 63, subpart FFFFF and completed a residual risk and technology review final rule in July 2020 (85 FR 42074). The purpose of this proposed rule is to (1) fulfill the EPA's statutory obligations pursuant to CAA section 112(d)(6) and the U.S. Court of Appeals for the D.C. Circuit's interpretation of that statute in *Louisiana Environmental Action Network v. EPA*, 955 F.3d 1088 (D.C. Cir. 2020) ("*LEAN*"), and (2) improve the emissions standards for this source category based on new information regarding developments in practices, processes and control technologies.

2. Summary of the Major Provisions of the Regulatory Action

To comply with CAA section 112, we are proposing (1) new emissions limits based on MACT for five currently unregulated HAP (COS, CS_2, Hg, HCl, and HF) from the sinter plants located at integrated iron and steel manufacturing facilities and (2) new MACT standards, in the form of opacity limits and work practice (WP) standards, for five unregulated sources of UFIP emissions: Unplanned Bleeder Valve Openings, Planned Bleeder Valve Openings, Slag Pits, Beaching, and Bell Leaks. In this context, opacity is a measure of the amount of light that is blocked or absorbed by an air pollution plume. The components of air pollution that block or absorb light are primarily particulate matter (PM), or PM. An opacity level of 0 percent means that any plumes of air pollution do not block or absorb light and are fully transparent (i.e., no visble emissions). On the other hand, an opacity of 100 percent would mean that the plume is quite dense and blocks all light (i.e., the trained observer or special camera can not see any

background behind the plume). Observers are trained and certified using smoke generators which produce known opacity levels, and periodic recertification is required every six months. More details regarding the EPA approved method for opacity readings by a trained observer are available at the following website: *https://www.epa.gov/emc/method-9-visual-opacity.* Alternatively, opacity can be observed with special cameras following a specific method (known as the digital camera opacity technique (DCOT), 40 CFR 63.7823), and those images interpreted by trained individuals. For the Integrated Iron and Steel Manufacturing (and a number of other metals processing and production sectors), we know that a significant portion of the emitted PM is comprised HAP metals (such as arsenic, lead, manganese, chromium) that are primarily emitted in particulate form. Therefore, for this industry as well as several other industries, PM serves as a surrogate for particulate HAP metals.

We are also proposing new emissions limits for three unregulated pollutants for BF stoves and BOPFs: total hydrocarbons (THC), HCl, and D/F, and for two unregulated pollutants for BFs: THC and HCl. In this action, pursuant to CAA section 112(d)(6), we are also proposing to: (1) Revise the current BOPF shop fugitive 20 percent opacity limit to a 5 percent opacity limit and require certain work practices; (2) revise the current BF casthouse fugitive 20 percent opacity limit to a 5 percent opacity limit; (3) add a fenceline monitoring requirement to help ensure the work practices and opacity limits are achieving the anticipated reductions; and (4) revise standards for D/F and PAHs from sinter plants to reflect the performance of current control devices.

3. Costs and Benefits

To meet the requirements of E.O. 12866, the EPA projected the emissions reductions, costs, and benefits that may result from the proposed rule. These results are presented in detail in

the regulatory impact analysis (RIA) accompanying this proposal developed in response to E.O. 12866. The proposed rule is significant under E.O. 12866 Section 3(f)(1), as amended by E.O. 14094 due to the monetized benefits of fine particulate matter ($PM_{2.5}$) reductions likely to result from the UFIP emissions standards included in the proposed rule. The RIA, which is available in the docket for this action, focuses on the elements of the proposed rule that are likely to result in quantifiable cost or emissions changes compared to a baseline without the proposed regulatory requirements. We estimated the cost, emissions, and benefit impacts for the 2025 to 2034 period, discounted to 2023. We show the present value (PV) and equivalent annualized value (EAV) of costs, benefits, and net benefits of this action in 2022 dollars. The EAV represents a flow of constant annual values that would yield a sum equivalent to the PV. The EAV represents the value of a typical cost or benefit for each year of the analysis, consistent with the estimate of the PV, in contrast to year-specific estimates.

The initial analysis year in the RIA is 2025 because we assume that will be the first year of full implementation of the rule. We are proposing that facilities will have 1 year to demonstrate compliance with the relevant standards following promulgation. This analysis assumes full compliance with the proposed standards will occur in late 2024 given the expected promulgation of this rule in late 2023. Therefore, the first full year of impacts will occur in 2025. The final analysis year is 2034, which allows us to provide 10 years of projected impacts after the rule takes effect.

The cost analysis presented in the RIA reflects a nationwide engineering analysis of compliance cost and emissions reductions. Impacts are calculated by setting parameters on how and when affected facilities are assumed to respond to a particular regulatory regime, calculating

estimated cost and emissions impact estimates for each facility, differencing from the baseline scenario, and then summing to the desired level of aggregation.

The EPA expects health benefits due to the emissions reductions projected from the rule. We expect that hazardous air pollutant (HAP) emission reductions will improve health and welfare associated with reduced exposure for those affected by these emissions. In addition, the EPA expects that $PM_{2.5}$ emission reductions that will occur concurrent with the reductions in HAP emissions will improve air quality and are likely to improve health and welfare associated with exposure to $PM_{2.5}$ and HAP. For the RIA, the EPA monetized benefits associated with premature mortality and morbidity from reduced exposure to $PM_{2.5}$. Discussion of both the monetized and non-monetized benefits can be found in Chapter 4 of the RIA.

Table 1 presents the emission changes and the PV and EAV of the projected monetized benefits, compliance costs, and net benefits over the 2025 to 2034 period under the rule. All discounting of impacts presented uses social discount rates of 3 and 7 percent.

Table 1. Monetized Benefits, Costs, Net Benefits, and Emissions Reductions of the Proposed NESHAP Subpart FFFFF Amendments, 2025 Through 2034[a]
[Dollar Estimates in Millions of 2022 Dollars, discounted to 2023]

	3 Percent Discount Rate		**7 Percent Discount Rate**	
	PV	**EAV**	**PV**	**EAV**
Benefits[b]	$2,300 and $2,400	$260 and $280	$1,700 and $1,700	$220 and $230
Compliance Costs	$39	$4.6	$32	$4.6
Net Benefits	$2,300 and $2,400	$260 and $280	$1,700 and $1,700	$220 and $230
Emissions Reductions (short tons)	2025–2034 Total			
HAP	790			
PM	23,000			
$PM_{2.5}$	5,600			
Non-monetized Benefits in this Table	HAP benefits from reducing 790 short tons of HAP from 2025–2034			
	Non-health benefits from reducing 23,000 tons of PM, of which 5,600 tons is $PM_{2.5,}$ from 2025–2034			
	Visibility benefits			
	Reduced ecosystem/vegetation effects			

[a] Totals may not sum due to independent rounding. Numbers rounded to two significant digits unless otherwise noted.
[b] Monetized benefits include health benefits associated with reductions in $PM_{2.5}$ emissions. The monetized health benefits are quantified using two alternative concentration-response relationships from the Di et al. (2016) and Turner et al. (2017) studies and presented at real discount rates of 3 and 7 percent. The two benefits estimates are separated by the word "and" to signify that they are two separate estimates. Benefits from HAP reductions remain unmonetized and are thus not reflected in the table.

B. Does this action apply to me?

Table 2 of this preamble lists the NESHAP and associated regulated industrial source categories that are the subject of this proposal. Table 2 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 Integrated Iron and Steel Manufacturing Facilities source category is any facility engaged in producing steel from iron ore. Integrated iron and steel manufacturing includes the following processes: sinter production, iron production, iron preparation (hot metal desulfurization), and steel production. The iron production process includes the production of iron in BFs by the reduction of iron-bearing materials with a hot gas. The steel production process includes BOPFs.

Table 2. NESHAP and Industrial Source Categories Affected by This Proposal

Source Category	NESHAP	NAICS Code[1]
Integrated Iron and Steel Manufacturing Facilities	40 CFR part 63, subpart FFFFF	331110

[1] North American Industry Classification System.

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

In addition to being available in the docket, an electronic copy of this action is available on the Internet. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at *https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission-standards*. Following publication in the *Federal Register*, the EPA will post the *Federal Register* version of the proposal and key technical documents at this same website.

A memorandum showing the rule edits that would be necessary to incorporate the changes to 40 CFR part 63, subpart FFFFF proposed in this action is available in the docket (Docket ID No. EPA-HQ-OAR-2002-0083). The EPA also will post a copy of this document to *https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission-standards*.

II. Background

A. What is the statutory authority for this action?

This action proposes to amend the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Integrated Iron and Steel Manufacturing Facilities source category.

The statutory authority for this action is provided by section 112 of the CAA, as amended (42 U.S.C. 7401, *et seq*.). In the first stage of the CAA section 112 standard-setting process, the EPA promulgates technology-based standards under CAA section 112(d) for categories of sources identified as emitting one or more of the HAP listed in CAA section 112(b). Sources of HAP emissions are either major sources or area sources, and CAA section 112 establishes different requirements for major source standards and area source standards. "Major sources" are those that emit or have the potential to emit 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAP. All other sources are "area sources." For major sources, CAA section 112(d)(2) provides that the technology-based NESHAP must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). These standards are commonly referred to as MACT standards. CAA section 112(d)(3) also establishes a minimum control level for MACT standards, known as the MACT "floor." In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards in lieu of numerical emission standards. The EPA must also consider control options that are more stringent than the floor. Standards more stringent than the floor are commonly referred to as "beyond-the-floor" (BTF) standards.

CAA section 112(d)(6) requires the EPA to review standards promulgated under CAA section 112 and revise them "as necessary (taking into account developments in practices, processes, and control technologies)" no less often than every eight years. While conducting this

review, which we call the "technology review," the EPA is not required to recalculate the MACT floors that were established during earlier rulemakings. *Nat. Resources Def. Council (NRDC) v. EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008); *Ass'n 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).

CAA section 112(f) 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. This review is known as the "residual risk review," and it must occur within eight years after promulgation of the standards. When EPA conducts the "technology review" together with the "residual risk review," the combined review is known as a "risk and technology review" or "RTR."

The EPA initially promulgated the Integrated Iron and Steel Manufacturing Facilities NESHAP on May 20, 2003 (68 FR 27645), under title 40, part 63, subpart FFFFF (the NESHAP). The rule was amended on July 13, 2006 (71 FR 39579). The amendments added a new compliance option, revised emission limitations, reduced the frequency of repeat performance tests for certain emission units, added corrective action requirements, and clarified monitoring, recordkeeping, and reporting requirements.

In 2015, a coalition of environmental advocacy groups filed a lawsuit to compel the EPA to fulfill its statutory duty to conduct the CAA sections 112(d) and 112(f)(2) reviews of 21 NESHAPs, including Integrated Iron & Steel Manufacturing Facilities. As a result of that litigation, the EPA was required by court order to complete the RTR for the Integrated Iron and Steel Manufacturing Facilities source category by May 5, 2020. *California Communities Against Toxics v. Wheeler*, No. 1:15–cv–00512, Order (D.D.C. March 13, 2017, as modified February

20, 2020). The resulting residual risk and technology review (RTR) conducted for the Integrated Iron and Steel Manufacturing Facilities NESHAP was signed on May 4, 2020. 85 FR 42074 (July 13, 2020).

In an April 2020 decision by the U.S. Court of Appeals for the District of Columbia Circuit, the court held that the EPA has an obligation to address unregulated HAP emissions from a source category when the Agency conducts the eight-year technology review required by CAA section 112(d)(6). *LEAN*, 955 F.3d at 1098–99. The parties in the *California Communities Against Toxics* case therefore filed a joint motion for an extension of the deadline to allow the EPA to revise the 2020 final rule to comply with the *LEAN* opinion. The court granted the motion, setting a new deadline for this rule of October 26, 2023. *California Communities Against Toxics*, Order (D.D.C. April 14, 2021).

And finally, in September 2021, industry and environmental advocacy groups filed petitions for review of the 2020 final rule, and these petitions have been consolidated. *American Iron and Steel Inst., et al. v. EPA*, No. 20-1354 (D.C. Cir.); *Clean Air Council, et al. v. EPA*, No. 20-1355 (D.C. Cir.). The consolidated case is in abeyance pending this rulemaking. *American Iron and Steel Inst.*, No. 20-1354 (consol.), Order, Dec. 7, 2022.

In light of this litigation history, today's proposed rule includes: (1) Proposed new standards to address currently unregulated emissions of HAP from the Integrated Iron and Steel Manufacturing Facilities source category pursuant to the *LEAN* decision and CAA sections 112(d)(2) and (3) and 112(h) and, (2) proposed revised standards for a few currently regulated HAP and fenceline monitoring requirements pursuant to the CAA section 112(d)(6) technology review.

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

As described above, the Integrated Iron and Steel Manufacturing Facilities source category includes any facility engaged in producing steel from refined iron ore (also known as taconite pellets). These facilities first produce iron from iron ore taconite pellets, sinter, coke, and other raw materials using blast furnaces (BFs), then produce steel from the hot liquid iron from the blast furnaces, along with coke, lime, alloys, steel scrap, and other raw materials using basic oxygen process furnaces (BOPFs). Integrated iron and steel manufacturing includes the following processes: sinter production, iron production, iron preparation (hot metal desulfurization), and steel production. The iron production process includes the production of iron in BFs by the reduction of iron-bearing materials with a very hot gas. The steel production process includes BOPFs and ladle metallurgy operations. Currently there are eight operating facilities in this source category.

The main sources of HAP emissions from integrated iron and steel manufacturing are the BF; BF stove; BOPF; hot metal transfer, desulfurization, and skimming (HMTDS) operations; ladle metallurgy operations; sinter plant windbox; sinter plant discharge end; and sinter cooler. All nine facilities have BFs, BF stoves, BOPFs, HMTDS operations, and ladle metallurgy operations. However, only three facilities have sinter plants.

The following are descriptions of the BF, BOPF, and sinter plants:

- The BF is a key integrated iron and steel process unit where molten iron is produced from raw materials such as iron ore, lime, sinter, coal and coke.
- The BOPF is a key integrated iron and steel process unit where steel is made from molten iron, scrap steel, lime, dolomite, coal, coke, and alloys.
- Sinter is derived from material formed in the bottom of the blast furnace, composed of oily scale, blast furnace sludge, and coke breeze, along with tarry material and oil

absorbed from the sump in which the sinter is recovered. The sinter plant processes the waste that would otherwise be landfilled so that iron and other valuable materials can be re-used in the blast furnace. Only three sources covered by the Integrated Iron and Steel Manufacturing Facility category have sinter plants, down from nine facilities with sinter plants in 2003.

In addition to point sources, the EPA identified seven UFIP emission sources for this source category, including BF bleeder valve unplanned openings BF bleeder valve planned openings, BF bell leaks, BF casthouse fugitives, BF iron beaching, BF and BOPF slag handling and storage operations, and BOPF shop fugitives. Some of these UFIP sources are also referred to as "fugitive" or "nonpoint" sources of emissions. These UFIP emission sources were identified by observation of visible plumes by EPA regional staff during onsite inspections and were subsequently investigated to determine the causes and any possible methods for reductions. These inspections were documented in numerous reports and photographs between 2008 and the present.[1] The NESHAP currently regulates two of these sources—BF casthouse fugitives and BOPF shop fugitives—with opacity limits.

The following are descriptions of the seven UFIP sources. More details can be found in the technical memoranda discussed below in Section II.D.

- The BF is a key integrated iron and steel process unit where molten iron is produced from raw materials such as iron ore, lime, sinter, coal and coke.
- The BOPF is a key integrated iron and steel process unit where steel is made from molten

[1] *E.g.*, communications between B. Dickens and P. Miller, U.S. EPA Region V, Chicago, IL, with D. L. Jones, U.S. EPA, Office of Air Quality Planning and Standards, Office of Air and Radiation, 2015–2018. See also *Ample Margin of Safety for Nonpoint Sources in the II&S Industry*, available in the docket to this rule.

iron, scrap steel, lime, dolomite, coal, coke, and alloys.

- Sinter is derived from material formed in the bottom of the blast furnace, composed of oily scale, blast furnace sludge, and coke breeze, along with tarry material and oil absorbed from the sump in which the sinter is recovered. The sinter plant processes the waste that would otherwise be landfilled so that iron and other valuable materials can be re-used in the blast furnace. Only three sources covered by the Integrated Iron and Steel Manufacturing Facility category have sinter plants, down from nine facilities with sinter plants in 2003.
- The BOPF shop is the structure that houses the entire BOPF and auxiliary activities, such as hot iron transfer, skimming, and desulfurization of the iron and ladle metallurgy operations, which generate fugitive emissions.
- The BF casthouse is the structure that houses the lower portion of the BF and encloses the tapping operation and the iron and slag transport operations, which generate fugitive emissions.
- The bleeder valve is a device at the top of the BF that, when open, relieves BF internal pressure to the ambient air. The valve can operate as both a self-actuating safety device to relieve excess pressure and as an operator-initiated instrument for process control. A bleeder valve opening means any opening of the BF bleeder valve, which allows gas and/or PM to flow past the sealing seat. Multiple openings and closings of a bleeder valve that occur within a 30-minute period could be considered a single bleeder valve opening. There are two types of openings, planned and unplanned.
- A planned bleeder valve opening means an opening that is initiated by an operator as part of a furnace startup, shutdown, or temporary idling for maintenance action. Operators can

prepare the furnace for planned openings to minimize or eliminate emissions from the bleeder valves.

- An unplanned bleeder valve opening means an opening that is not planned and is caused by excess pressure within the furnace. The pressure buildup can occur when raw materials do not descend smoothly after being charged at the top of the BF and accumulate in large masses within the furnace. When the large masses finally dislodge (slip) due to their weight, a pressure surge results.
- Slag is a by-product containing impurities that is released from the BF or BOPF along with molten iron when the BF or BOPF is tapped from the bottom of the furnace. The slag is less dense than iron and, therefore, floats on top of the iron. Slag is removed by skimmers and then transported to open pits to cool to enable later removal. Usually there is one slag pit for every BF or BOPF.
- Iron beaching occurs when iron from BF cannot be charged to the BOPF because of problems in steelmaking units; the hot molten iron from the BF is placed onto the ground, in some cases within a three-sided structure.
- The BF bells are part of the charging system on top of the furnace that allows for materials to be loaded into the furnace or next bell (as in the case of small bells) without letting BF gas escape. It is a two-bell system, where a smaller bell is above a larger bell. These bells need to have a tight seal onto the blast furnace when not in use for charging so that BF gas and uncontrolled emissions do not escape to the atmosphere. Over time, the surfaces that seal the bells wear down and need to be repaired (for small bells) or replaced (for large bells). If these seals are not repaired or replaced in a timely manner, emissions of HAP and PM can increase significantly.

In the 2020 final rule, the Agency found that risks due to emissions of air toxics from this source category were acceptable and concluded that the NESHAP provided an ample margin of safety to protect public health. Under the technology review in the 2020 RTR, EPA found no developments in practices, processes, or control technologies that necessitated revision of the standards at that time. However, in response to a 2004 administrative petition for reconsideration, the 2020 final rule promulgated a new MACT emissions limit for mercury (0.00026 lbs mercury/ton scrap metal) with two compliance options: (1) Conduct annual compliance tests (to demonstrate compliance with the MACT limit) or (2) confirm that the facility obtains their auto scrap from suppliers that participate in the National Vehicle Mercury Switch Recovery Program (NVMRP) or another approved mercury switch removal program or that the facility only uses scrap that does not contain mercury switches. We also removed exemptions for periods of startup, shutdown, and malfunction (SSM) consistent with a 2008 court decision and clarified that the emissions standards apply at all times; added electronic reporting of performance test results and compliance reports; and made minor corrections and clarifications for a few other rule provisions. All documents used to develop the previous 2003, 2006, and 2020 final rules can be found in either the legacy docket, A-2000-44, or the electronic docket, EPA-HQ-OAR-2002-0083.

The current NESHAP includes emissions limits for particulate matter (PM) and opacity standards (both of which are surrogates for non-mercury PM HAP metals) for furnaces and sinter plants. To support the continued use of PM as a surrogate for certain non-mercury HAP metals, we considered the holding in *National Lime v. EPA*, 233 F.3d 625 (D.C. Cir. 2000). In considering whether the EPA may use PM, a criteria pollutant, as a surrogate for metal HAP, the D.C. Circuit stated that the EPA "may use a surrogate to regulate hazardous pollutants if it is

'reasonable' to do so," *id*. at 637, and laid out criteria for determining whether the use of PM as a surrogate for non-mercury metal HAP was reasonable. The court found that PM is a reasonable surrogate for HAP if: (1) "HAP metals are invariably present" in the source's PM," *id*.; (2) the "source's PM control technology indiscriminately captures HAP metals along with other particulates," *id*. at 639; and (3) "PM control is the only means by which facilities 'achieve' reductions in HAP metal emissions," *id*. If these criteria are satisfied and the PM emission standards reflect what the best sources achieve in compliance with CAA section 112(d)(3), "EPA is under no obligation to achieve a particular numerical reduction in HAP metal emissions." *Id*. The EPA has established and promulgated PM limits as a surrogate for particulate HAP metals successfully in several previous NESHAP including Ferroalloys Production (80 FR 37366, June 30, 2015), Taconite Iron Ore Processing NESHAP (68 FR 61868), and Primary Copper Smelting NESHAP (67 FR 40478, June 12, 2002).

The NESHAP also includes an operating limit for the oil content of the sinter plant feedstock or, as an alternative, an emissions limit for volatile organic compounds (VOC) for the sinter plant windbox exhaust stream. The oil limit, and the alternative VOC limit, serve as surrogates for all organic HAP. Moreover, the NESHAP includes an emissions limit for mercury emissions from the BOPF Group, which is the collection of BOPF shop steelmaking operating units and their control devices including the BOPF primary emission control system, BOPF secondary control system, ladle metallurgy units, and hot metal transfer, desulfurization and slag skimming units.

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

The EPA issued a CAA section 114 information request in January 2022, including a facility questionnaire and source testing request, to both parent companies in this source

category, resulting in information for all eight operating facilities. The questionnaire requested information in the following categories: general facility information, process unit tables, and UFIP emission information. Facility responses provided information regarding which UFIP work practices are currently being utilized or have been tried in the past, and any benefits, drawbacks, or complications of each one. They also provided information about the frequencies of some of their intermittent emissions, such as planned and unplanned bleeder valve openings. The compilation of the facility responses can be found in the docket for this proposed rulemaking (EPA-HQ-OAR-2002-0083). The information we received on UFIP emissions helped us develop the standards in this proposed rule. The EPA requested source testing for HAP metals and hydrogen fluoride (HF) at the sinter plant windbox control device and opacity data for the fugitive and intermittent particulate sources. In addition, the EPA requested fenceline monitoring for lead, arsenic and chromium at four facilities.

In September 2022, the EPA issued a supplemental CAA section 114 information request for additional source testing at one facility for each parent company. From one facility, we requested source testing for HCl and total hydrocarbons for the BF stove, BF casthouse, and the BOPF primary control device, as well as source testing for D/F from the BF stove and the BOPF primary control device. From the other facility, we requested source testing for HCl and D/F from the BOPF primary control device, as well as source testing for D/F at the outlet of the boiler from the BF stove. One additional facility voluntarily submitted test reports for HCl and THC for the BF stove and BF casthouse, as well as THC source testing for the BOPF primary control device. These data were gathered to supplement data we already had from the 2020 RTR rule development, which is described in the 2019 RTR proposed on August 16, 2019 (84 FR 42704), and in technical support documents cited in that notice. The compilation of source

testing results can be found in the docket for this action (EPA-HQ-OAR-2002-0083).

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

The EPA used several resources, including industry consultation, AP-42 Compilation of Air Pollutant Emission Factors, Fifth Edition, dated January 15, 1995, as amended with Supplements and Updates, EPA studies, and other published technical documents to estimate emissions for the UFIP sources. The seven UFIP sources and development of emissions estimates for these sources at an example facility are described in detail in three technical memoranda. The first, *Ample Margin of Safety for Nonpoint Sources in the II&S Industry May 1, 2019,* available in the docket for this rule (EPA-HQ-OAR-2002-0083-0953), describes the seven UFIP sources, work practices that can help reduce or minimize HAP and PM emissions, estimated costs of these work practices, and estimated risks before and after implementation of work practices based on the 2019-2020 RTR rulemaking analyses. The second, *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Manufacturing Facility for Input to the RTR Risk Assessment 5/1/2020,* also available in the docket (EPA-HQ-OAR-2002-0083-1094), describes the following: (1) The development of emissions estimates for UFIP from processes where emissions from UFIP are thought to occur; (2) estimates of PM emissions from these processes; (3) HAP-to-PM ratios used to estimate HAP emissions from the PM emissions estimates; and (4) the resulting HAP emissions estimated. These two memoranda were developed to support the 2019 proposed RTR rule and the 2020 final RTR rule.

We further developed updated estimates of HAP, PM, and $PM_{2.5}$ emissions from the UFIP at all other operating Integrated Iron and Steel Manufacturing Facility sources, which are described in the third and most recent 2023 memorandum, *Unmeasured Fugitive and*

Intermittent Particulate Emissions and Cost Impacts for Integrated Iron and Steel Facilities under 40 CFR Part 63, Subpart FFFFF, available in the docket for this action.

Also, regarding the proposed requirements for the UFIP sources (described below), industry representatives provided additional information including suggested opacity limits and work practices (and suggested regulatory text).[2] Furthermore, we received additional data and information from industry in April, but we were unable to review and analyze this information for this proposal given the timing of its submission.[3] We solicit comments on the information and suggestions that industry provided including whether EPA should adopt some or all of these suggestions and a thorough explanation as to why, or why not.

III. Analytical Procedures and Decision-Making

A. How do we perform the technology review?

Our technology review primarily focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. Where we identify such developments, we analyze their technical feasibility, estimated costs, energy implications, and non-air health and environmental impacts. The EPA also considers 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, the Agency considers the appropriateness of applying controls

[2] See February 22, 2023 email from Paul Balserak, American Iron and Steel Institute (AISI), and the attachment to that email, "II&S DRAFT PROPOSED RULE UFIP LANGUAGE," available in the docket for this action.

[3] See April 12, 2023 email from Paul Balserak, AISI, and two attachments, "PRELIMINARY FEEDBACK ON POTENTIAL STANDARDS FOR THE INTEGRATED IRON AND STEEL MANUFACTURING NESHAP" &"Attachment A to Supp to Jan and Feb Submittals," available in the docket for this action.

to new sources versus retrofitting existing sources. For this exercise, the EPA considers 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 to the add-on control technology or other equipment that was identified and considered during development of the original MACT standards that could result in additional emissions reductions;
- 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 the EPA originally developed the NESHAP, we review a variety of data sources in our investigation of potential practices, processes, or controls to consider. The EPA also reviews the NESHAP and the available data to determine whether there are any unregulated emissions of HAP within the source category and evaluates the data for use in developing new emission standards. See sections II.C and II.D of this preamble for information on the specific data sources that were reviewed as part of the technology review.

B. How do we develop and calculate CAA section 112(d)(2) and (3) standards?

The MACT floor limits for relevant HAP are calculated based on the average performance of the best-performing five units in each category or subcategory and on a consideration of these units' variability. The MACT floor for new sources is based on the single best-performing source, with a similar consideration of that source's variability. The MACT floor for new sources cannot be less stringent than the emissions performance that is achieved in practice by the best-controlled similar source. To account for variability in the operation and emissions, we calculated the MACT floor emissions limits for this source category using the 99 percent Upper Predictive Limit (UPL) using the available stack emissions test results. We note that the MACT floor limits for new units are based on a limited data set.[4]

The UPL approach addresses variability of emissions test data from the best-performing source or sources in setting MACT standards. The UPL also accounts for uncertainty associated with emission values in a dataset, which can be influenced by components such as the number of samples available for developing MACT standards and the number of samples that will be collected to assess compliance with the emission limit. The UPL approach has been used in many environmental science applications. As explained in more detail in the UPL Memo cited above, the EPA uses the UPL approach to reasonably estimate the emissions performance of the best-performing source or sources to establish MACT floor standards when the EPA has emissions test data that allow for such calculations.

After the MACT floor limits are developed, the EPA also evaluates potential beyond-the-floor (BTF) options (*i.e.*, more stringent options) to determine whether there are cost-effective

[4] For more information regarding the general use of the UPL and why it is appropriate for calculating MACT floors, see *Use of Upper Prediction Limit for Calculating MACT Floors* (UPL Memo), which is available in the docket for this action.

appropriate standards that can achieve additional reductions that should be proposed instead of the MACT floor standards.

IV. Analytical Results and Proposed Decisions

A. Proposed standards to address five unregulated UFIP sources for both new and existing sources

1. BF Unplanned Bleeder Valve Openings

Sometimes raw material within the BF builds up, fails to descend smoothly, and falls or slips. Sometimes these slips create a pressure surge that is relieved, along with excess pollutant emissions (e.g., PM with HAP metals), out of bleeder valves that are positioned about 100 feet above the casthouse. If the slip results in the valve opening, we call this an "unplanned opening." Unplanned openings can last between a few seconds and ten minutes, and occur between 0 to 7 times per month, and fewer slips and fewer unplanned openings occur with better screening of raw material and more attentive furnace operation to enable early action to avoid unplanned openings. Based on the data we received through the section 114 requests, the average number of unplanned openings of the best performing five furnaces in the source category is 5 unplanned openings per year. Therefore, we estimate that the MACT floor level of performance is 5 unplanned openings per year.

All slips are preceded by raw material hanging in the furnace, creating a bridge. It is our understanding that because furnaces have level indicators, furnace operators should know when conditions for a slip are forming, and if they are forming, operators should be able to take action to induce a small slip that can avoid a larger slip that ultimately causes an unplanned bleeder valve opening. It is our understanding that hanging of raw material can be avoided or significantly reduced by screening fine particulates from the raw material. Therefore, unplanned

openings should be limited to a significant extent by operators monitoring the furnace and taking actions when certain parameter readings indicate a slip may occur.

We estimate that about 2.1 tpy of HAP metals are emitted from the Integrated Iron and Steel source category due to these unplanned openings. Because unplanned openings are variable, only last for up to 10 minutes, and due to the structure of the bleeder valves, it is not technically or economically feasible to reliably measure emissions from unplanned openings. Therefore, based on our evaluation of available information, pursuant to CAA section 112(d)(2) and (3) and CAA section 112(h), we are proposing work practice standards that would require facilities to do the following: (1) Install and operate devices (e.g., stockline monitors) to continuously measure/monitor material levels in the furnace, at a minimum of three locations, using alarms to inform operators of static conditions that indicate a slip may occur, and therefore, in turn, alert them that there is a need to take action to prevent the unplanned openings from occurring; (2) install and operate instruments such as a thermocouple and transducer on the furnace to monitor temperature and pressure to help determine when a slip may occur; (3) install a screen to remove fine particulates from raw materials to ensure only properly-sized raw materials are charged into the BF; and (4) develop, and submit to the EPA for approval, a plan that explains how the facility will implement these requirements. Additionally, we are proposing that facilities will need to report the unplanned openings (including the date, time, duration, and any corrective actions taken) in the semiannual compliance report.

In addition to the proposed work practices, we are also proposing an operational limit of five unplanned openings per year per furnace for existing sources, which is an estimate of the MACT floor level of performance for existing sources. For new sources, we are proposing an

operational limit of zero unplanned openings per year because the best performing single source in our database reported zero unplanned openings for the most recent typical year.

We estimate that the costs for the entire industry for these proposed standards would be $1,470,000 and annualized costs would be $239,800, for the eight facilities to comply with these work practice requirements, and that these requirements will result in about 0.5 tpy emissions reductions.

We propose that the limit of 5 unplanned openings per year per furnace and the work practice standards described above are a reasonable estimation of the MACT floor level of performance (*i.e.*, represent a reasonable estimate of the average performance of the best performing five sources). Furthermore, we did not identify any cost-effective and appropriate BTF options. Nevertheless, we solicit comments regarding: (1) Whether EPA should change or remove any of the specific work practices described above, and, if so, an explanation including any related analysis to support as to why or why not; (2) whether there are cost-effective BTF options; (3) whether EPA should consider a different number of unplanned openings per year (e.g., 3, 6, or 10 unplanned openings per year, or a different value), and if so, why; (4) whether the limit should be an enforceable compliance limit or an action level that triggers the need to do root cause analyses and take corrective action; and (5) are there furnace design differences that affect operations related to unplanned openings. Furthermore, we solicit comments on the cost estimates for all aspects of these proposed requirements, including costs for the recordkeeping and reporting requirements, and we solicit data and suggestions regarding any other aspect of these proposed requirements that we should consider as we develop the final rule, including any additional data regarding how many unplanned openings have occurred per year (e.g., for the past five years) for the various blast furnaces in the source category.

Further information and analyses (regarding the proposed MACT standard, BTF options and other relevant topics) are available in the document titled *Unmeasured Fugitive and Intermittent Particulate Emissions and Cost Impacts for Integrated Iron and Steel Facilities under 40 CFR Part 63, Subpart FFFFF* which is available in the docket

2. BF Planned Bleeder Valve Openings

Bleeder valves are opened periodically to allow repair or other maintenance. The furnace is turned down to low idle before valves are opened, which results in lower emissions than during unplanned openings. It is our understanding that planned openings happen up to 2 times per week for repairs or for maintenance for a total average of approximately 15 hours per week per furnace. We estimate that source category emissions resulting from these planned openings are about 1.6 tpy of HAP metals.

We received opacity data from six of the eight operating facilities for planned openings. We reviewed the maximum 6-minute opacity readings for all six facilities. Based on the 2022 data, the two best-performing facilities had maximum 6-minute opacity readings of 0 percent and 6.25 percent, respectively. The average opacity readings at these two facilities are 0 percent and 3.39 percent respectively. The average of the maximum 6-minute opacity values for the best performing five facilities is 7.75 percent (rounded to 8 percent). In calculating the opacity limit, we did not apply the standard UPL approach (described in section III.B of this preamble) because that method has not been used in the past when calculating opacity limits. More information and explanation regarding opacity, especially in the context of EPA emissions standards, is provided in section II.A.2 of this preamble. More information regarding the UFIP sources and the development of proposed standards for UFIP sources are provided in the document titled *Unmeasured Fugitive and Intermittent Particulate Emissions and Cost Impacts*

for Integrated Iron and Steel Facilities under 40 CFR Part 63, Subpart FFFFF, which is in the docket for this proposed rule.

We estimate that the "MACT floor" is the average of the maximum 6-minute opacity levels, which is 8 percent. We also evaluated a limit of 5 percent opacity as a potential BTF option for existing sources. We also determined based on evaluation of available information that emissions can be minimized from bleeder valve planned openings cost effectively by implementing various actions before the valves are opened such as: (1) Tapping as much liquid (iron and slag) out of the furnace as possible; (2) removing fuel and/or stopping fuel injection into the furnace; and (3) lowering bottom pressure.

Based on our evaluation of available information, pursuant to CAA section 112(d)(2) and (3) for existing sources we are proposing a MACT Floor limit of 8 percent opacity for any 6-minute averaging period for the BF planned bleeder valve openings. For new sources, we are proposing an opacity of 0 percent because based on the available data, the best performing single source had opacity of 0 percent during the planned opening. We are not proposing the BTF option of 5 percent opacity for existing sources because we assume 5 percent opacity may not be feasible for some sources on a consistent basis. We are not proposing any work practices under CAA section 112(h) for the BF planned bleeder valve openings. Facilities will have the flexibility to choose an appropriate approach to meet the opacity limit. We estimate that this proposed standard will result in about 0.41 tpy reduction in HAP metal emissions. The estimated cost is $54,600/yr for the entire category and $6,800/yr per facility. The estimated cost effectiveness is $134,000 per ton of HAP metals.

We solicit comments and additional information regarding these proposed requirements, including: (1) Comments regarding the proposed opacity limits, including the level of the opacity

limits and averaging time; (2) whether the EPA should apply the UPL approach (or other statistical approach) to derive the opacity limits for UFIP sources and if so an explanation of the suggested application of the UPL or other statistical approach to derive opacity limits; (3) whether the EPA should promulgate work practices instead of the opacity limits and a description of those work practices; and (4) whether the EPA should promulgate work practices and the opacity limits.

3. BF and BOPF slag processing, handling, and storage

Slag (liquid waste on the surface of molten iron or steel) is skimmed and transported out of buildings in troughs (or "runners") or by using pots to large pits where it cools. Emissions occur during four activities: 1) dumping of hot slag in pits; 2) storing slag in open pits; 3) removing slag from pits with loaders, and; 4) handling (*e.g.*, movement into and out of trucks and slag piles), storage, and processing. Operators can spray water on the slag or use fogging systems, which create and direct fog (tiny water droplets or ice crystals suspended in the air) into the slag area to weigh down and minimize PM (or dust) emissions during dumping, loading, and digging operations. We estimate that about 30 tpy of HAP metals are emitted from slag processing, handling, and storage for the source category.

We received opacity data from seven of the eight operating facilities. We reviewed the maximum 6-minute opacity readings for all seven facilities. The average of the maximum 6-minute opacity values for the best performing five facilities is 9 percent. Based on the 2022 data, the two best-performing facilities in our dataset had maximum opacity readings of 2.5 percent and 5 percent, respectively. The average opacity readings at these two facilities are 0.2 percent and 1.2 percent, respectively. We did not apply the standard UPL approach for the same reasons discussed above. Nevertheless, this average of maximum opacity values suggests that the

"MACT floor" is approximately 9 percent. We also evaluated a limit of 5 percent opacity as a potential BTF option. We also determined based on evaluation of available information that emissions can be minimized from slag pits cost effectively with the application of water spray or fogging. Also, other work practices such as installing wind screens, dust suppression misters, a high moisture content of the slag during handling, storage, and processing and using material handling practices can help minimize emissions. Therefore, based on our analyses, pursuant to CAA section 112(d)(2) and (3), for existing sources we are proposing a BTF opacity limit of 5 percent (based on 6-minute averages) for visible emissions from slag pits, and during slag handling, storage, and processing. This will result in an estimated 7.4 tpy reduction in HAP metal emissions. The estimated cost is $308,000 per year for the entire category and $38,500 per year per facility. The estimated cost effectiveness is $41,900 per ton of HAP metals. Regarding new sources, we are proposing an opacity limit of 2.5 percent (based on 6-minute averages) for visible emissions from slag pits, and during slag handling, storage, and processing.

However, regarding the proposed limit for existing sources, we are soliciting comments as to the feasibility of the 5 percent BTF opacity limit for other facilities in the source category, and also soliciting comments as to whether the EPA should set the opacity limit at the MACT floor level (i.e., 9 percent opacity based on 6-minute averages), or possibly at a lower, more stringent value, instead of the 5 percent BTF opacity limit, and if so why, or why not. We also solicit comments and data regarding the proposed opacity limit for new sources.

4. BF Bell Leaks

Large and small bells are part of a lock system above the BF that is used to charge raw materials into the BF without gases escaping. The bells have metal seals that wear down over time from mechanical use and movement of bells (they open to charge, then close when charge is

done, frequently, which results in frequent contact between the metal parts, which leads to wear and tear overtime). Overtime, the seals wear down or are damaged, which eventually results in gases being emitted to the atmosphere. Therefore, the bells need to be repaired or replaced periodically to prevent emissions. We estimate that about 76 tpy of HAP metals are emitted from Bell Leaks for the source category.

Based on our evaluation, pursuant to CAA section 112(d)(2) and (3), we are proposing 10 percent opacity as an action level for large bell leaks (not a MACT emissions limit), as described below. We are also proposing that the BF top will need to be observed monthly for visible emissions (VE) with EPA Method 22, 40 CFR part 60, appendix A-7, which determines the presence or absence of a visible plume, to identify leaks, and if VE are detected out of the interbell relief valve (indicating leaks from the large bell), we are proposing that the facility would then need to perform EPA Method 9, 40 CFR part 60, appendix A-4, tests which determines the opacity (i.e., degree to which a plume obscures the background), monthly and if opacity is greater than 10 percent (based on a 3-minute average), the large bell seals will need to be repaired or replaced within 4 months. For the small bell, we are proposing that facilities will need to replace or repair seals prior to a metal throughput limit, specified by the facility, that has been proven and documented to produce no opacity from the small bells. This will result in an estimated 31 tpy reduction in HAP metal emissions. The estimated cost is $935,000 per year for the entire category and $120,000 per facility. The estimated cost effectiveness is $30,000 per ton of HAP metals. There could potentially be some additional incremental costs due to this proposed requirement due to the possible need to repair or replace the seals more frequently than facilities currently do the repairs or replacement to account for additional capital costs and loss of production due to more frequent furnace shutdowns to do such repairs or replacement,

however, we have insufficient information to estimate these possible additional incremental costs at this time.

We are soliciting comments regarding these proposed requirements, including whether the opacity action level should be set at a higher or lower percent value and, if so, for what averaging period. We also solicit comments regarding all other aspects of these proposed requirements including the 4-month time period (to repair or replace seals) described above, and the estimated costs (including costs due to loss production, if any) and emissions reductions associated with these proposed requirements.

5. Beaching of Iron from BFs

When the BOPF is stopped suddenly and cannot accept iron, then hot iron from the BF is dumped onto the ground and fumes are emitted. We estimate that less than 1 tpy of HAP metals are emitted from beaching for the source category.

Available data and responses to the 2022 CAA section 114 request indicate that one facility does not have beaching and another facility had not done any beaching for 3 years (2019, 2020, or 2021). Of the remaining six operating facilities, four facilities have full or partial enclosures or use CO_2 to suppress fumes, and all six facilities minimize the height, slope, and speed of beaching. Therefore, we conclude these actions approximately represent the MACT floor level of performance. Furthermore, we did not identify any more stringent cost-effective BTF options. For these reasons, pursuant to CAA section 112(d)(2) and (3) and CAA section 112(h), we are proposing a MACT standard that would require facilities to: (1) Have full or partial enclosures for the beaching process or use CO_2 to suppress fumes; and (2) minimize the height, slope, and speed of beaching. We expect this will result in a small amount of unquantified emission reductions since baseline emissions are already low (less than 1 tpy of

HAP) and because most facilities are already following some or all of these work practices. The estimated cost is $55,000 per year for the entire category and an average annual cost of $6,800 per facility. More information regarding the proposed standards, and the BTF options considered, for unregulated UFIP sources is available in the following document: *Unmeasurable Fugitive and Intermittent Particulate Emissions and Cost Impacts for Integrated Iron and Steel Facilities under 40 CFR Part 63, Subpart FFFFF*, which is available in the docket for this action.

We solicit comments and additional information regarding all aspects of these proposed beaching requirements.

B. Reconsideration of BF casthouse and BOPF shop standards for currently regulated fugitive sources under CAA 112(d)(6) technology review for both new and existing sources

1. How did we develop the proposed revised CAA section 112(d)(6) technology review standards for BOPF shop fugitive emissions?

The BOPF shop fugitive emissions occur from hot metal and scrap charging, tapping steel, hot metal transfer, and metallurgical processes. Hoods collect some fugitives and route them to controls. Uncaptured fugitives exhaust through roof vents, doors, or other openings such as removed or damaged sections of the enclosure or building that were not part of the original design. We estimate the current total emissions from BOPF shops in the source category are about 123 tpy of HAP metals (such as manganese, arsenic, chromium and lead). The current NESHAP has a 20 percent opacity limit for the BOPF shop.

When EPA was developing the 2020 RTR, EPA had very limited data regarding the opacity levels being achieved by facilities at that time and limited data regarding the types of work practices being applied by facilities. The EPA explained in the 2019 proposed rule ((84 FR

42704, August 16, 2023), and again in the 2020 final rule (85 FR 42074, July 13, 2020) that EPA did not propose any of these work practices primarily because there were significant uncertainties in the technical assessment of UFIP emissions that included estimates of the baseline UFIP emissions, the estimated HAP reductions that would be achieved by the work practices, and the costs of the work practices. In addition, EPA also stated that there were uncertainties in the effect the work practices would have on facility operations, economics, and safety.

Based on our review and analyses of the CAA section 114 information request responses we received in 2022 and 2023, and further review of the data and analyses the EPA assembled to support the 2020 RTR, we now conclude that a standard comprising a 5 percent opacity limit with several specific work practices is feasible and cost effective. For example, based on the data we received, the maximum 3-minute opacity readings for the BOPF shops at four facilities are less than 5 percent. Furthermore, the use of work practices (described below) by the best performing facilities in the industry leads us to conclude that these work practices are feasible, and accordingly, we are proposing a 5 percent opacity limit (based on 3-minute average) and work practices.

Specifically, we are proposing that facilities will need to do the following: (1) Keep all openings, except roof monitors (vents) and other openings that are part of the designed ventilation of the facility, closed during tapping and material transfer events (the only openings that would be allowed during these events are the roof vents and other openings or vents that are part of the designed ventilation of the facility) to allow for more representative opacity observations from a single opening; (2) have operators conduct regular inspections of BOPF shop structure for unintended openings and leaks; (3) optimize positioning of hot metal ladles

with respect to hood face and furnace mouth; (4) monitor opacity twice per month from all openings, or from the one opening known to have the highest opacity, for a full steel cycle, which must include a tapping event; and (5) develop and operate according to an Operating Plan to minimize fugitives and detect openings and leaks. We are proposing that the BOPF Shop Operating Plan shall include:

- An explanation regarding how the facility will address and implement the four specific work practices listed above;
- A maximum hot iron pour/charge rate (pounds/second) for the first 20 seconds of hot metal charge (i.e., the process of adding hot iron from the BF into the basic oxygen process furnace);
- A description of operational conditions of the furnace and secondary emission capture system that must be met prior to hot metal charge, including:
    - A minimum flowrate of the secondary emission capture system during hot metal charge;
    - A minimum number of times, but at least once, the furnace should be rocked between scrap charge and hot metal charge;
    - A maximum furnace tilt angle during hot metal charging: and;
    - An outline of procedures to attempt to reduce slopping.

We estimate the costs to implement these WPs will be about $500,000 per year for the source category ($60,000 per facility), and the WPs will achieve about 25 tpy reduction in HAP metal emissions, with cost effectiveness of $19,600 per ton HAP metals.

We solicit comments and additional information regarding these proposed requirements, including: (1) Comments regarding the specific work practices and opacity limit, including the

level of the opacity limit, averaging time and frequency of the Method 9 opacity tests to demonstrate compliance; (2) whether the EPA should only promulgate the opacity limit and not include specific work practices; (3) whether the EPA should only include the work practices and not the opacity limit; (4) whether EPA should remove or change any of the specific work practices described above, and if so, an explanation with supporting analysis as to what changes should be made and why. We also are soliciting comments on whether EPA should provide an alternative limit to the 5 percent opacity limit for a small period of time during each cycle, or for a certain time period (e.g., once per month or once per 3-month period), similar to the alternative standard that is in the current subpart FFFFF NESHAP for new top blown BOPF shops, which says that new top blown BOPF shops must not exceed an opacity of "10 percent, except that one 3-minute period greater than 10 percent but less than 20 percent may occur once per steel production." (See 40 CFR part 63, subpart FFFFF), or whether EPA should make the standard, or standards, also dependent on a percentage of operating time.

2. How did we develop the revised CAA section 112(d)(6) technology standards for BF casthouse fugitive emissions?

Fugitive emissions from the BF leave the casthouse through roof vents, doors left open, and other openings. We estimate the current total emissions from BF casthouses in the source category are about 46 tpy of HAP metals (such as manganese, arsenic, chromium and lead). The current NESHAP includes 20 percent opacity limits for the casthouse. Based on review of the CAA section 114 information request responses, we determined that a 5 percent opacity limit is feasible and cost effective. For example, based on recent 2022 data, two facilities (Braddock and Gary) are already below 5 percent opacity (*e.g.*, maximum 6-minute opacity readings of 3.54 and 4.17 percent, respectively). Furthermore, based on thirteen Method 9 tests (each about 2 to 3.5

hours long) in 2018 to 2021 for casthouse fugitives at the Indiana Harbor facility (which are available in the docket for this action), the maximum 6-minute opacity from all of those tests was less than 2 percent opacity. Therefore, we have data indicating that at least three facilities' BFs are already below 5 percent and therefore can meet the proposed 5 percent opacity limit (based on 6-minute averages) with no new control costs, and we expect the other 5 facilities can achieve 5 percent or lower opacity with cost-effective improvements in their operations (as described in the technical memorandum cited below). Therefore, we are proposing a 5 percent opacity limit (based on 6-minute averages) as an update to the CAA section 112(d)(6) technology review and proposing that facilities will need to measure opacity during the tapping operations (at least 2 times per month). We are not proposing specific work practices for the BF casthouse, except that we are proposing that the facilities will need to keep all openings, except roof monitors, closed during tapping and material transfer events (the only openings that would be allowed during these events are those that were present in the original design of the shop). We estimate the costs to achieve and maintain the 5 percent opacity, conduct and record the opacity readings, and ensure the openings (described above) are closed will be approximately $740,000 per year for the source category ($93,000 per facility). We estimate that these actions would achieve roughly 14.4 tpy reduction in emissions of HAP metals, with a cost-effectiveness of about $51,400 per ton HAP metals. Additional information regarding the emissions estimates and the cost calculations for BOPF shop and casthouse is available in the following documents: *Unmeasured Fugitive and Intermittent Particulate Emissions and Cost Impacts for Integrated Iron and Steel Facilities under 40 CFR Part 63, Subpart FFFFF* , which is available in the docket for this action.

EPA solicits comments regarding any suggested modifications to the BF casthouse proposed standards, with thorough explanations to support any suggestions with regard to opacity limits and/or work practices (and suggested regulatory text) including those described in an email from Paul Balserak of the AISI and in an attachment to that email titled: *II&S DRAFT PROPOSED RULE UFIP LANGUAGE, February 22, 2023*, which are available in the docket for this action. However, we received this information too late for us to be able to review and analyze for this proposal. We solicit comments on the information that industry representatives provided including whether EPA should adopt some or all of these suggestions for the final rule, and a thorough explanation including supporting analysis as to why, or why not. We also solicit comments regarding whether EPA should provide an alternative to the 5 percent opacity limit for the BF casthouse, such as the potential alternative described above for top blown BOPF shops opacity, or some other type of alternative, and if so, an explanation of that possible alternative and why, or whether EPA should make the standard, or standards, also dependent on a percentage of operating time.

A summary of estimated annual costs, HAP metal emission reductions, and cost-effectiveness for the proposed standards of each UFIP source are summarized in Table 3.

Table 3. Estimated Annual Costs, HAP Metal Emission Reductions, and Cost-Effectiveness for Proposed UFIP Standards

Source	Annualized Costs		HAP Metal Reduction (tpy)	Cost-Effectiveness ($/ton HAP removed)
	Total for Industry	Average per Facility		
BF Unplanned Openings	$239,800	$30,000	0.5	$478,800
BF Planned Openings	$54,600	$6,800	0.41	$134,000
Slag Handling & Storage	$308,000	$38,500	7.4	$41,900
BF Bell Leaks	$935,000	$120,000	31	$30,000
BF Iron Beaching	$55,000	$6,800	0.0035	$15,800,000
BOPF Shop Fugitives	$500,000	$60,000	25	$19,600
BF Casthouse Fugitives	$740,000	$93,000	14.4	$51,400

Total for the 7 UFIP sources	$2,828,200	$353,500	79	$35,924

C. Results of fenceline monitoring analyses

In the 2020 RTR, we identified arsenic and chromium as the HAP metals driving the highest risk. Lead also had relatively high emissions estimates in the RTR proposal and is a criteria air pollutant with the potential to cause significant adverse health effects. Therefore, with our 2022 CAA section 114 information requests, we directed certain facilities to monitor these three HAP metals along their fencelines using the sampling method described in 40 CFR Part 50, Appendix B. We requested fenceline data (*i.e.*, measured concentrations of the pollutant in the air at, or near, the fenceline in units of micrograms per cubic meter of air ($\mu g/m^3$)) for arsenic, chromium, and lead from four facilities at a minimum of four sampling locations per facility (or a total of 16 monitoring sites for the category) using Method 40 CFR part 50, appendix B. Each sampling period lasted 24 hours with five-day intervals in between each sampling period for a total of 6 months (*i.e.*, facilities conducted air sampling for 24 hours every sixth day for a six-month period at each site). These results were averaged at all sampling locations and periods for each facility, resulting in a six-month average concentration for each metal at each of the 16 fenceline locations.

1. Lead and Arsenic Results

For lead, the highest measured 6-month average fenceline concentration (from the 2022–2023 CAA section 114 request sampling) is 3 times greater than the highest modeled concentration for the example facility (US Steel Gary) evaluated in the 2019 RTR proposed rule (84 FR 42704, August 16, 2019) and the 2020 RTR final rule (85 FR 42074, July 13, 2020).

We compared the average 6-month fenceline measurements at each of the 16 monitoring locations to the Pb National Ambient Air Quality Standard (NAAQS), which is 0.15 $\mu g/m^3$ (based on a three-month rolling average). For all locations at all facilities, the averages were well below the NAAQS level, with the highest average only 20 percent of the NAAQS, indicating that lead concentrations are below levels of concern at the fenceline for this source category.

For arsenic, the average concentrations measured at the fencelines of the four facilities ranged from 0.001 to 0.015 ug/m^3. Compared to the 2019–2020 modeled results, the highest measured fenceline concentration for arsenic is 6 times higher than the highest modeled concentration at the same example facility.

2. Chromium/Chromium VI Results

Chromium concentrations measured at the fencelines of the four facilities ranged from 0.001 to 0.175 ug/m^3. Compared to the 2019-2020 modeled results, the highest measured fenceline concentration of Cr is 28 times higher than the highest modeled Cr concentration at the same example facility.

Chromium has the highest potential for adverse health effects when it is in the chromium VI oxidized state (Cr^{6+}), which is toxic and classified as a human carcinogen; therefore, we estimated the percentage of total chromium at the fenceline that is Cr^{6+}. To do so, we used a combination of previous emissions data from the emissions release stacks from the 2020 RTR database and values provided by industry—from ambient monitoring data from a site in Michigan that is approximately 250 meters from the fenceline of an integrated iron and steel facility—to determine a range of ratios for Cr^{6+} to total Cr. The stack testing data from the EPA's RTR proposed and final rules and the recent submittal from industry regarding the ambient monitoring data are provided in the following documents: *Integrated Iron and Steel Risk and*

Technology Review: Point Source Data Summary Memorandum (*IIS_Data_Memo_05-01-19-PROPOSAL-RTI.pdf)* and *DRAFT: Review of Available Hexavalent and Total Chromium Ambient Monitoring Data (2022-12-16 427pm Draft – Review of Hex Chrome to Chrome Ambient Air Data – Copy-c.pdf)*, which can be found in the docket.

The stack testing data collected from the 2011 Integrated Iron and Steel Manufacturing Facilities CAA section 114 request to industry provided ratios of 10 percent to 39 percent of total Cr that is Cr^{6+} for secondary and primary BOPF units, respectively. These data are presented in the technical memorandum titled *Integrated Iron and Steel Risk and Technology Review: Point Source Data Summary*, which is available in the docket for the 2020 RTR final rule. Further inspection into the data from this request revealed three issues with the values of Cr^{6+} and total Cr, as follows: (1) Some values of Cr^{6+} were higher than total Cr, which is scientifically impossible; (2) one value of Cr^{6+} was equal to total Cr, which we expect is quite improbable because only one value from one facility of the total 22 values from 11 facilities (provided in the 2020 document cited above) reported equal results for Cr^{6+} and total chromium; and (3) there were a few extremely high and low outliers. The data that fell under each of these three categories were removed, and the ratio of Cr^{6+} to total Cr was recalculated. This resulted in a new estimated range of ratios from 10 percent to 18 percent of the total Cr being in the Cr^{6+} form for secondary and primary BOPF units, respectively.

In addition, industry provided feedback on the original ratio range of 10 percent to 39 percent $Cr^{6+}$with data supporting a much lower ratio, around 1 percent. They provided ratios from ambient air data collected from 2007–2012 at an EPA air toxics monitor approximately 250 meters from the Dearborn, MI Integrated Iron and Steel facility as well as ratios from a Detroit Air Toxics Initiative (DATI) study in 2001 and 2006. The DATI study found ratios from 0.98

percent to 1.18 percent Cr^{6+}, while the Dearborn air monitoring analysis found ratios from 0.68 percent to 0.97 percent Cr^{6+}. The DATI study and other Michigan data mentioned above are available in the following document: *2022-12-16 427pm Draft - Review of Hex Chrome to Chrome Ambient Air Data - Copy-c.pdf*, which is in the docket for this action.

After considering all analysis, we concluded that an estimated range for the ratio of Cr^{6+} to total Cr at the fenceline is 1 percent to 18 percent and applied this range to the average total chromium fenceline measurements to calculate lower- and upper-bound Cr^{6+} fenceline concentrations. The range of Cr^{6+} concentrations at the fenceline across all four facilities using these ratios is 0.0001 to 0.0315 ug/m^3. When compared to the 2020 modeled results, the highest measured concentration of Cr^{6+} at the fenceline was anywhere from 2 to 32 times higher than the highest concentration modeled. This indicates Cr and Cr^{6+} (using a ratio of 1 percent to 18 percent to estimate measurements at the fenceline) emissions were underestimated in the 2020 RTR risk modeling assessment. We expect this difference between modeled and monitored levels is mainly due to an underestimation of fugitive Cr emissions in the RTR.

D. What are the proposed decisions based on our fenceline monitoring data analyses, and what is the rationale for those decisions?

Based on our analysis of the available data and reductions we expect would be achieved by the proposed work practices and opacity limits described above in sections IV.A and B, we are proposing a fenceline monitoring requirement in the NESHAP pursuant to CAA section 112(d)(6). Fenceline monitoring refers to the placement of monitors along the perimeter of a facility to measure pollutant concentrations. Coupled with requirements for root cause analysis and corrective action upon triggering an actionable level, this work practice standard is a development in practices considered under CAA section 112(d)(6) for the purposes of managing

fugitive emissions. The measurement of these pollutant concentrations and comparison to concentrations estimated from mass emissions via dispersion modeling can be used to ground-truth emission estimates from a facility's emissions inventory. If concentrations at the fenceline are greater than expected, the likely cause is that there are underreported or unknown emission sources affecting the monitors. In addition to the direct indication that emissions may be higher than inventories would suggest, fenceline monitoring provides information on the location of potential emissions sources. Further, when used with a mitigation strategy, such as root cause analysis and corrective action upon exceedance of an action level, fenceline monitoring can be effective in reducing emissions and reducing the uncertainty associated with emissions estimation and characterization. Finally, public reporting of fenceline monitoring data provides public transparency and greater visibility, leading to more focus and effort in reducing emissions.

Specifically, for the Integrated Iron and Steel Manufacturing NESHAP, we are proposing that facilities must install four ambient air monitors at or near the fenceline at appropriate locations around the perimeter of the facility, regardless of facility size, based on a site specific plan approved by the EPA and collect and analyze samples for total chromium every sixth day, as well as implement the following work practice requirement: if an installed fenceline monitor has a 12-month rolling average delta c concentration, calculated as the annual average of the highest sample value for a given sample period minus the lowest sample value measured during that sample, that is above the proposed action level of 0.1 $\mu g/m^3$ for total chromium, the facility must conduct a root cause analysis and take corrective action to prevent additional exceedances. Data will be reported electronically to the EPA's Compliance and Emissions Data Reporting Interface (CEDRI) on a quarterly basis and subsequently available to the public via the Web Factor Information Retrieval system (WebFIRE) website. We solicit comments regarding this

proposed electronic reporting, specifically whether when, when required, a corrective action plan should be submitted via CEDRI and subsequently available through WebFIRE, subject to CBI limitations.

We chose to only propose fenceline measurements for chromium because it is found to be a good surrogate for other HAP metals, especially arsenic, which was the other risk driving HAP metal in the 2020 RTR risk analyses (as described in section IV.C of this preamble). Arsenic values at the fenceline are found to correlate approximately 90% with chromium values at the fenceline according to linear regression. Thus, the fenceline requirement for chromium will allow for the effective management of fugitive emissions of other HAP metals.

We derived the proposed action level of 0.1 $\mu g/m^3$ by first evaluating all the fenceline Cr results to determine the highest measured 6-month delta c average level across all facilities (which was determined to be 0.154 $\mu g/m^3$ at the US Steel Gary facility). The 2nd highest 6-month average monitoring delta c result across all facilities was 0.115 $\mu g/m^3$ at the Granite City facility. Both other facilities (Cleveland Works and Burns Harbor) have delta c 6-month averages below 0.08 $\mu g/m^3$. To establish the proposed action level, we evaluated the estimated reductions of HAP metals that we expect will be achieved at Gary through the proposed work practices and opacity limits. We estimate that the Gary facility will achieve at least a 20 percent reduction in HAP metals by complying with the proposed opacity limits and work practices. A 20 percent reduction would result in an estimated highest 6-month delta c concentration of about 0.123 $\mu g/m^3$. Because of the variability and limitations in the data, to establish the proposed action level we rounded off this highest 6-month value (*i.e.*, 0.122) to one significant figure (i.e., 0.1 $\mu g/m^3$). We determined that more significant figures would not be appropriate based on such a data set. Therefore, we are proposing 0.1 $\mu g/m^3$ as the action level for the fenceline monitoring

requirement. Given that: (1) Two of the four facilities are already below 0.08 μg/m^3; (2) we project that another facility (Granite City) will be below 0.1 after implementation of the work practices and opacity limits; and (3) since the fourth facility (Gary) is expected to have post control levels that are very close to 0.1 μg/m^3 (and round-off to 0.1 μg/m^3) we propose that an action level of 0.1 μg/m^3 is appropriate and will ensure the effective management of fugitive emissions of other HAP metals.

We also considered a potential action level of 0.08 μg/m^3 or 0.09 μg/m^3 based in part on the following information. As mentioned above, two of the four facilities already have 6-month delta c averages below 0.08 μg/m^3 and one facility (Granite City) is expected to be at 0.09 μg/m^3 after implementation of the work practices and opacity limits. Furthermore, the fourth facility would only need to achieve about a 42% reduction of UFIP emissions, therefore we think an action level of 0.09 μg/m^3 (or some other level such as 0.08 μg/m3) might be appropriate and cost effective. Therefore, we solicit comments and information as to whether an action level of 0.09 μg/m^3 (or some other level such as 0.08 μg/m^3) would be more appropriate than the proposed 0.1 μg/m^3 action level, and if so, why.

Furthermore, we are proposing to also include a sunset provision whereby if the 12-month average values remain 50 percent below (or lower) than the action level (*i.e.*, below 0.05 μg/m^3) for a 24-month period, then that facility would not need to continue with fenceline monitoring as long as they continue to comply with all other proposed requirements described in this proposed rule along with all other requirements already established in the current NESHAP. We solicit comments regarding this proposed sunset provision, including whether a reduced frequency of monitoring would be more appropriate than a complete termination of such monitoring, and if so, what frequency would be appropriate, or whether a reduced number of

monitors would be more appropriate (e.g., allow removal of each monitor that remains below the 0.05 $\mu g/m^3$ for a period of time).

More information regarding the estimated reductions of fugitive emissions are provided in the document titled *Unmeasurable Fugitive and Intermittent Particulate Emissions and Cost Impacts for Integrated Iron and Steel Facilities under 40 CFR Part 63, Subpart FFFFF,* which is available in the docket for this action.

We expect that the proposed combination of work practices and opacity limits described above in sections IV.A and B will likely ensure fenceline concentrations remain below this action level most, if not all, of the time, so we expect the only costs for this requirement will be the costs for developing the plans, setting up monitoring equipment, collecting and analyzing the samples, and reporting the results. The estimated cost for this requirement is $25,000 capital cost and $41,000/yr in annual costs per monitor, $100,000 capital costs and $164,000/yr in annual costs per facility, and $800,000 capital costs and $1.3M/yr in annual costs for the entire source category. This includes equipment, installation, lab costs, and maintenance and labor.

E. Proposed standards to address unregulated point sources for both new and existing sources

In addition to the unregulated UFIP sources, we identified five unregulated HAP from sinter plant point sources (CS_2, COS, HCl, HF, and Hg), three unregulated HAP (D/F, HCl and THC [as a surrogate for organic HAP other than D/F]) from BF stove and BOPF point sources, and two unregulated HAP (HCl and THC) from BF point sources.

The proposed MACT limits for HCl and THC from BF stove point sources were calculated based on data from nine runs each at two different facilities. Six of these runs had no production data or lb/ton emissions data in the test report. The lb/ton emissions values for these

six runs were calculated using the average of the BF stove production values in the three test runs from the facility's 2012 HAP metal emissions test report.

The proposed MACT limit for THC from BOPF point sources were calculated based on data from six runs at two different facilities. Three of these runs had no production data or lb/ton emissions data in the test report. The lb/ton emissions values for these three runs were calculated using the average of the BOPF production values in the three test runs from the facility's 2012 HAP metal emissions test report.

We did not identify any cost-effective BTF options for these 13 unregulated HAP. The BTF options we considered and the estimated costs and reductions that the BTF options would achieve are described in the *Maximum Achievable Control Technology Standard Calculations, Cost Impacts, and Beyond-the-Floor Cost Impacts for Integrated Iron and Steel Facilities under 40 CFR Part 63, Subpart FFFFF*, which is available in the docket for this action. Therefore, we are proposing MACT floor limits for the five unregulated HAP from sinter plant point sources, the three unregulated HAP from BF stove and BOPF point sources, and the two unregulated HAP from BF casthouse control devices, as shown in Table 4. We expect no control costs or emissions reductions as a result of these emissions limits, except there will be some costs for compliance testing, recordkeeping, and reporting which are described in sections V.C and VIII.B of this preamble.

As explained above, we are proposing MACT floor limits (not BTF limits), so we think all facilities should be able to comply with these MACT floor limits with their current controls (i.e., we expect there will be no new control costs for the new MACT floor limits). Nevertheless, EPA solicits comment regarding this conclusion.

Table 4. Estimated HAP Emissions and Proposed MACT Limits for Point Sources

Process	HAP	Estimated Source Category Emissions	Proposed MACT Limit
Sinter Plants	CS_2	23 tpy	Existing and new sources: 0.028 lb/ton sinter
Sinter Plants	COS	72 tpy	Existing sources: 0.064 lb/ton sinter New sources: 0.030 lb/ton sinter
Sinter Plants	HCl	12 tpy	Existing sources: 0.025 lb/ton sinter New sources: 0.0012 lb/ton sinter
Sinter Plants	HF	1.3 tpy	Existing and new sources: 0.0011 lb/ton sinter
Sinter Plants	Hg	55 pounds/yr	Existing sources: 3.5e-5 lb/ton sinter New sources: 1.2e-5 lb/ton sinter
BF casthouse control devices	HCl	1.4 tpy	Existing sources: 0.0013 lb/ton iron New sources: 5.9e-4 lb/ton iron
BF casthouse control devices	THC	270 tpy	Existing sources: 0.092 lb/ton iron New sources: 0.035 lb/ton iron
BOPF	D/F (TEQ[1])	3.6 grams/yr	Existing and new sources: 4.7e-8 lb/ton steel
BOPF	HCl	200 tpy	Existing sources: 0.078 lb/ton steel New sources: 1.9e-4 lb/ton steel
BOPF	THC	13 tpy	Existing sources: 0.04 lb/ton steel New sources: 0.0017 lb/ton steel
BF Stove	D/F (TEQ)	0.076 grams/year	Existing and new sources: 3.8e-10 lb/ton iron
BF Stove	HCl	4.5 tpy	Existing sources: 5.2e-4 lb/ton iron New sources: 1.4e-4 lb/ton iron
BF Stove	THC	200 tpy	Existing sources: 0.1 lb/ton iron New sources: 0.0011 lb/ton iron

[1] Toxic equivalents

The EPA solicits comment on the data used to calculate the MACT floor limits (shown in Table 4). EPA also welcomes the submittal of more test data from stakeholders, as soon as possible, to further inform the development of appropriate MACT limits for the final rule. We are also soliciting comments on whether the format of the limits (lbs/ton) for BF Stoves is most appropriate or whether a different format would be more appropriate for the BF Stoves such as lbs of HAP per cubic foot of gas or lbs of HAP per British thermal unit (BTU). EPA also solicits comment on whether an averaging compliance alternative should be considered for the NESHAP

to demonstrate compliance with the limits and if so what types of alternatives should be considered. We also solicit comment on whether there are surrogates that are representative of any of the new HAP limits that EPA should consider and, if so, why, including an explanation as to how that surrogate might be appropriate for any of these HAP.

F. Reconsideration of standards for D/F and PAH for sinter plants under CAA section 112(d)(6) technology review for both new and existing sources

As part of our updates to the CAA section 112(d)(6) review, we analyzed available test data for D/F and PAH from sinter plants. We also evaluated potential emissions limits for D/F and PAHs. First, we developed a regulatory option that reflects the current control technologies and practices (current performance) at the existing sinter plants at the three source category facilities that have sinter plants. The sinter plants are currently controlled with baghouses or wet scrubbers. To derive an emissions limit that reflects current controls, we used the UPL approach we typically use for calculation of MACT floor limits (described above in section III.B). Using the UPL method, we calculated an emissions limit of 3.5E-08 lbs/ton of sinter for D/F (TEQ) and an emissions limit of 5.9E-03 lbs/ton for PAHs for existing sinter plant windboxes and limits of 3.1E-09 lbs/ton of sinter for D/F (TEQ) and 1.5E-03 lbs/ton of sinter for PAHs for new sinter plant windboxes.

Second, as part of the technology review, we analyzed and evaluated an option based on the addition of new controls (*i.e.*, activated carbon injection or ACI) to reduce emissions of D/F and PAHs. We estimate the total capital costs of these controls would be $950,000, the annual costs would be $2.3 million, and the controls would achieve 8 grams per year reduction of D/F TEQ and 5.4 tpy reduction of PAHs, with cost effectiveness of $287,000 per gram and $340,000 per ton, respectively.

Based on that analysis and evaluation of regulatory options, we conclude that the second option (*i.e.*, addition of ACI) is not cost effective. This conclusion is consistent with the EPA's decisions made in the 2020 RTR final rule as part of our ample margin of safety analysis for D/F in 2020. Therefore, we are proposing the emissions limits of 3.5E-08 lbs/ton of sinter for D/F (TEQ) and 5.9E-03 lbs/ton of sinter for PAHs for existing sinter plant windboxes, and limits of 3.1E-09 lbs/ton of sinter for D/F (TEQ) and 1.5E-03 lbs/ton of sinter for PAHs for new sinter plant windboxes that reflect current performance. We estimate all three facilities with sinter plants would be able to meet these limits with no additional controls so there will be no emissions reductions with these new existing standards. The estimated costs for compliance tests are $50,000 to $75,000 per facility, once every 5 years. Furthermore, we do not expect any new sinter plants will be constructed in the foreseeable future. Therefore, we expect no impacts due to these new source emissions limits.

Regarding the second option described above (*i.e.*, an emissions limit based on addition of ACI), although we are not proposing this option, we solicit comments regarding this option, including the cost effectiveness determination and whether or not EPA should establish a tighter limit (based on application of ACI) and if so why and analysis to support that conclusion. For more details regarding our data and analyses of options, see the technical memorandum titled: *Maximum Achievable Control Technology Standard Calculations, Cost Impacts, and Beyond-the-Floor Cost Impacts for Integrated Iron and Steel Facilities under 40 CFR Part 63, Subpart FFFFF*, which is available in the docket for this action.

EPA also solicits comment on whether the proposed new limits for dioxin/furans and PAHs are appropriate or if EPA should instead maintain the current approach in the NESHAP which is that the sinter plant oil content limit of the feedstock to the sinter plant and/or the VOC

emission limit from the windbox exhaust stream are surrogates for the dioxin/furans and PAH emissions for sinter plants.

G. Adding 1-bromopropane to list of HAP

On January 5, 2022, the EPA published a final rule amending the list of hazardous air pollutants (HAP) under the CAA to add 1-bromopropane (1-BP) in response to public petitions previously granted by the EPA. (87 FR 393). Consequently, as each NESHAP is reviewed, we are evaluating whether the addition of 1-BP to the CAA section 112 HAP list impacts the source category. For the Integrated Iron and Steel Manufacturing Facilities source category, we conclude that the inclusion of 1-BP as a regulated HAP would not impact the representativeness of the MACT standard because, based on available information, we have no evidence that 1-BP is emitted from this source category. As a result, no changes are being proposed to the subpart FFFFF NESHAP based on the January 2022 rule adding 1-BP to the list of HAP. Nevertheless, we are requesting comments regarding the use of 1-BP and any potential emissions of 1-BP from this source category.

H. What compliance dates are we proposing?

Amendments to the Integrated Iron and Steel Manufacturing Facilities NESHAP proposed in this rulemaking for adoption under CAA section 112(d)(2), (3), and (6) and 112(h) are subject to the compliance deadlines outlined in the CAA under section 112(i). For existing sources, CAA section 112(i)(3) provides there shall be compliance "as expeditiously as practicable, but in no event later than 3 years after the effective date of such standard . . . ." subject to certain exemptions further detailed in the statute.[5] In determining what compliance

[5] *Ass'n of Battery Recyclers v. EPA*, 716 F.3d 667, 672 (D.C. Cir. 2013) (stating that "section 112(i)(3)'s 3-year maximum compliance period applies generally to 'any emission standard . . . promulgated under [CAA section 112]'" (quoting 42 U.S.C. § 7412(i)(3) (brackets in original)).

period is as "expeditious as practicable," we consider the amount of time needed to plan and construct projects and change operating procedures. As provided in CAA section 112(i), all new affected sources must comply with these provisions by the effective date of the final amendments to the Integrated Iron and Steel Manufacturing Facilities NESHAP or upon startup, whichever is later.

All affected facilities would have to continue to meet the current provisions of 40 CFR part 63, subpart FFFFF until the applicable compliance date of the amended rule. The final action is expected to qualify under the definition in 5 U.S.C. section 804(2), so the effective date of the final rule will be 60 days after the promulgation date as specified in the Congressional Review Act. See 5 USC 801(a)(3)(A).

With regard to the new emissions limits for sinter plant windboxes, since we have test data from all three existing sinter plants except for HF from one facility, and because these facilities already have controls in place to meet the new emissions limits (as described above), we expect facilities will be able to comply with the new emissions limits in a relatively short time period after the final rule is published in the *Federal Register*. However, we expect the sources will need some time (*e.g.*, up to 6 months) to conduct applicability reviews, conduct performance testing, and implement monitoring to comply with the new emissions limits. Therefore, for all affected sinter plant windbox sources that commence construction or reconstruction on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], we are proposing that owners or operators must comply with the new emissions limits within 6 months after the promulgation date of the final rule.

With regard to fenceline monitoring requirements, a method for the fenceline measurement of metals has not yet been promulgated. Once the method is promulgated, we

expect that sources will need up to 6 months to begin the required monitoring because they first need to develop fenceline monitoring plans, submit those plans to the EPA for review and approval, and then they will require time to set up all the fenceline monitors which will include, in some cases, installing new electric powerlines to support the new monitors. Therefore, for all affected sources that commence construction or reconstruction on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], we are proposing that owners or operators must comply with the proposed fenceline monitoring requirements within 1 year of promulgation of the fenceline method for metals or 2 years after the promulgation date of the final rule, whichever is later. This would mean that facilities would need to begin the fenceline monitoring no later than 1 year after the promulgation date of the fenceline method or 2 years after promulgation of the rule. The EPA intends to propose a metals fenceline method sometime in 2024 through a separate action. Subsequently, the proposed action level and requirements for root cause analyses and other actions would apply 12 months later since the action level is based on 12-month rolling average concentrations.

With regard to the proposed opacity limits and work practice standards, although we do not expect the need for any additional add-on controls, we expect facilities need up to 12 months to install and operate various types of equipment, such as devices to continuously measure/monitor material levels in BFs with alarms to inform operators of static conditions which increase likelihood of unplanned bleeder valve openings; instruments on the BF to monitor temperature and pressure; water spray equipment or fogging equipment to minimize emissions from slag; full or partial enclosures or CO_2 gas suppression equipment to minimize emissions during beaching; improved hooding or fans to increase draft velocities to capture more fugitives in BF casthouse or BOPF shop; or improved runner covers in the BF casthouses.

Furthermore, facilities may need several months to repair unintended openings in the BF casthouse or BOPF shop that are not part of the original or modified building design. Therefore, for all affected sources that commence construction or reconstruction on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], we are proposing that owners or operators must comply with the opacity limits and work practices for the seven UFIP sources described above in sections IV.A and B within 12 months after promulgation.

With regard to the new emissions limits for HCl, THC, and D/F for BFs and BOPFs, as explained above in section IV.E, we expect all facilities will be able to comply with the new emissions limits without the need for additional controls because all BFs and BOPFs are similar and have similar controls. Therefore, for all affected BF and BOPF sources that commence construction or reconstruction on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], we are proposing that owners or operators must comply within 6 months after the promulgation date of the final rule.

For all affected sources that commence construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**], we are proposing that owners or operators must comply with the all the proposed new and revised provisions by the effective date of the final rule (or upon startup, whichever is later). All compliance dates for this proposed rule are summarized in Table 5.

Table 5. Summary of Compliance Dates for the Proposed Rule

Source(s)	Rule Requirement	Compliance Date
All affected sinter plant windbox sources that commence construction or reconstruction on or before [**INSERT DATE OF**	Proposed new emissions limits for mercury, HCl, HF, CS_2, COS, D/F, and PAH	6 months after the promulgation date of the final rule

PUBLICATION IN THE FEDERAL REGISTER]		
All affected sources that commence construction or reconstruction on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**]	Proposed fenceline monitoring requirements	1 year after the promulgation of the fenceline method for metals or 2 years after the promulgation date of the final rule, whichever is later
	Proposed opacity limits and work practices for the seven UFIP sources	12 months after the promulgation date of the final rule
All affected BF and BOPF sources that commence construction or reconstruction on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**]	Proposed new emissions limits for HCl, THC, and D/F	6 months after the promulgation date of the final rule
All affected sources that commence construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER**]	All proposed new and revised provisions	Effective date of the final rule (or upon startup, whichever is later)

We solicit comment on these proposed compliance periods, 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 provisions and the time needed to make the adjustments for compliance with any of the revised provisions. We also solicit comment on whether and how efforts to meet the proposed compliance periods would impact decarbonization efforts or other efforts to address hazardous air pollutants. We note that information provided could result in changes to the proposed compliance dates, if appropriate.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected sources?

The affected sources are facilities in the Integrated Iron and Steel Manufacturing Facilities source category. This includes any facility engaged in producing steel from iron ore.

Integrated iron and steel manufacturing includes the following processes: sinter production, iron production, iron preparation (hot metal desulfurization), and steel production. The iron production process includes the production of iron in BFs by the reduction of iron-bearing materials with a hot gas. The steel production process includes BOPF. Based on the data we have, there are eight operating integrated iron and steel manufacturing facilities subject to this NESHAP, and one idle facility.

B. What are the air quality impacts?

We project emissions reductions of about 79 tpy of HAP metals and about 560 tpy of $PM_{2.5}$ from UFIP sources in the Integrated Iron and Steel Manufacturing Facilities source category due to the new and revised standards for UFIP sources.

C. What are the cost impacts?

The estimated capital costs are $5.4M and annualized costs are $2.8M per year for the source category for the new UFIP control requirements. Also, compliance testing for all the new standards is estimated to cost about $1.7M once every 5 years for the source category (which equates to about an average of roughly $320,000 per year). The estimated cost breakdown for the fenceline monitoring requirement is $25,000 capital cost and $41,100 annual operating costs per monitor, $100,000 capital costs and $164,000 annual operating costs per facility, and $800,000 capital costs and $1.3M annual operating costs for the source category (assumes 8 operating facilities). Additional monitoring, recordkeeping, and reporting requirements associated with the proposed rule are expected to cost $7,500 per facility per year ($60,000 for the source category per year, assuming eight facilities). The total estimated capital costs are $6.2 million and total estimated annualized costs are $4.9 million for all the proposed requirements for the source category. However, annual costs could decrease after facilities complete 2 years of fenceline

monitoring because we are proposing a sunset provision whereby if facilities remain below the action level for 2 full years, they can terminate the fenceline monitoring as long as they continue to comply with all other rule requirements. There may be some energy savings from reducing leaks of BF gas from bells, which is one of the work practices described in this preamble, however those potential savings have not been quantified.

D. What are the economic impacts?

The EPA conducted an economic impact analysis for the proposed rule in the Regulatory Impact Analysis (RIA), which is available in the docket for this action. If the compliance costs, which are key inputs to an economic impact analysis, are small relative to the receipts of the affected industries, then the impact analysis may consist of a calculation of annual (or annualized) costs as a percent of sales for affected parent companies. This type of analysis is often applied when a partial equilibrium or more complex economic impact analysis approach is deemed unnecessary given the expected size of the impacts. The annualized cost per sales for a company represents the maximum price increase in the affected product or service needed for the company to completely recover the annualized costs imposed by the regulation. We conducted a cost-to-sales analysis to estimate the economic impacts of this proposal, given that the EAV of the compliance costs over the period 2025–2034 are $4.6 million using a 7 percent or a 3 percent discount rate in 2022 dollars, which is small relative to the revenues of the steel industry.

There are two parent companies directly affected by the proposal: Cleveland-Cliffs, Inc. and U.S. Steel. Each reported greater than $20 billion in revenue in 2021. The EPA estimated the annualized compliance cost each firm is expected to incur and determined the estimated cost-to-sales ratio for each firm is less than 0.02 percent. Therefore, the projected economic impacts of the expected compliance costs of the proposal are likely to be small. The EPA also conducted a

small business screening to determine the possible impacts of the proposed rule on small businesses. Based on the Small Business Administration size standards and Cleveland-Cliffs, Inc. and U.S. Steel employment information, this source category has no small businesses.

E. What are the benefits?

The proposed UFIP emissions work practices to reduce HAP emissions (with concurrent control of $PM_{2.5}$) could improve air quality and the health of persons living in surrounding communities. The proposed opacity limits and UFIP work practices are expected to reduce about 79 tpy of HAP metal emissions, including emissions of manganese, lead, arsenic, and chromium. Due to methodology and data limitations, we did not attempt to monetize the health benefits of reductions in HAP in this analysis. Instead, we are providing a qualitative discussion of the health effects associated with HAP emitted from sources subject to control under the proposed action in section 4.2 of the RIA, available in the docket for this action. The EPA remains committed to improving methods for estimating HAP benefits by continuing to explore additional aspects of HAP-related risk from the integrated iron and steel manufacturing sector, including the distribution of that risk.

The proposed opacity limits and UFIP work practices are also estimated to reduce $PM_{2.5}$ emissions by about 560 tpy for the source category. The EPA estimated monetized benefits related to avoided premature mortality and morbidity associated with reduced exposure to $PM_{2.5}$ for 2025–2034. The present-value (PV) of the short-term benefits for the proposed rule range from $2.3 billion at a 3 percent discount rate to $1.7 billion at a 7 percent discount rate with an equivalent annualized value (EAV) of $260 million and $220 million, respectively. The EAV represents a flow of constant annual values that would yield a sum equivalent to the PV. The PV of the long-term benefits for the proposed rule range from $2.4 billion at a 3 percent discount

rate to $1.7 billion at a 7 percent discount rate with an EAV of $280 million and $230 million, respectively. All estimates are reported in 2022 dollars. For the full set of underlying calculations see the *Integrated Iron and Steel Benefits workbook*, available in the docket for this action.

F. What analysis of environmental justice did we conduct?

Executive Order 12898 directs EPA to identify the populations of concern who are most likely to experience unequal burdens from environmental harms, which are specifically minority populations (people of color), low-income populations, and Indigenous peoples (59 FR 7629, February 16, 1994). Additionally, Executive Order 14096 built upon and supplemented that order (88 FR 25,251) (Apr. 26, 2023). . For this action, pursuant to the Executive Orders, the EPA conducted an assessment of the impacts that would result from the proposed rule amendments, if promulgated, on communities with environmental justice concerns living near Integrated Iron and Steel facilities.

Consistent with the EPA's commitment to integrating environmental justice (EJ) in the Agency's actions, the Agency has carefully considered the impacts of this action on communities with EJ concerns. The EPA defines EJ as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[6] The EPA further defines fair treatment to mean that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies." In recognizing that communities with EJ concerns often bear an unequal burden of environmental harms and risks, the EPA continues to consider ways of protecting them

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

from adverse public health and environmental effects of air pollution. For purposes of analyzing regulatory impacts, the EPA relies upon its June 2016 *Technical Guidance for Assessing Environmental Justice in Regulatory Analysis*,[7] which provides recommendations that encourage analysts to conduct the highest quality analysis feasible, recognizing that data limitations, time, resource constraints, and analytical challenges will vary by media and circumstance. The Technical Guidance states that a regulatory action may involve potential EJ concerns if it could: (1) Create new disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples; (2) exacerbate existing disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples; or (3) present opportunities to address existing disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples through this action under development.

To examine the potential for any EJ issues that might be associated with Integrated Iron and Steel Manufacturing Facilities sources, we performed a proximity demographic analysis, which is an assessment of individual demographic groups of the populations living within 5 km and 50 km of the facilities. The EPA then compared the data from this analysis to the national average for each of the demographic groups. This approach is consistent with EPA's longstanding approach for evaluating the potential for impacts on communities with EJ concerns..

The results of the proximity demographic analysis (see Table 6) indicate that, for populations within 5 km of the nine integrated iron and steel facilities, the percent of the population that is African American is more than twice the national average (27 percent versus 12 percent). In addition, the percentage of the population that is living below the poverty level

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

(29 percent) and living below 2 times the poverty level (52 percent) is well above the national average (13 percent and 29 percent, respectively). Other demographics for the populations living within 5 km are below or near the respective national averages.

Within 50 km of the nine sources within the Integrated Iron and Steel Manufacturing Facilities category, the percent of the population that is African American is above the national average (20 percent versus 12 percent). Within 50 km the income demographics are similar to the national averages. Other demographics for the populations living within 50 km are below or near the respective national averages.

The methodology and the results of the demographic analysis are presented in the document titled *Analysis of Demographic Factors for Populations Living Near Integrated Iron and Steel Facilities*, which is available in the docket for this action.

As discussed in other subsections of the impacts of this action, in this action the EPA is proposing requirements for facilities to improve UFIP emission control resulting in reductions of both metal HAP and $PM_{2.5}$. We estimate that all facilities will achieve reductions of HAP emissions as a result of this proposed rule, including the facilities at which the percentage of the population living in close proximity who are African American and below poverty level is greater than the national average. The proposed changes will have beneficial effects on air quality and public health for populations exposed to emissions from integrated iron and steel facilities.

Table 6. Proximity Demographic Assessment Results for Integrated Iron and Steel Manufacturing Facilities

Demographic Group	Nationwide	Population within 50 km of 9 Facilities	Population within 5 km of 9 Facilities
Total Population	329,824,950	18,966,693	478,761
	Race and Ethnicity by Percent		
White	60%	63%	52%
African American	12%	20%	27%
Native American	0.6%	0.1%	0.2%
Hispanic or Latino (includes white and nonwhite)	19%	10%	16%
Other and Multiracial	9%	7%	5%
	Income by Percent		
Below Poverty Level	13%	13%	29%
Above Poverty Level	87%	87%	71%
Below 2x Poverty Level	29%	28%	52%
Above 2x Poverty Level	71%	72%	48%
	Education by Percent		
Over 25 and without a High School Diploma	12%	9%	18%
Over 25 and with a High School Diploma	88%	91%	82%
	Linguistically Isolated by Percent		
Linguistically Isolated	5%	3%	6%

Notes:

- The nationwide population count and all demographic percentages are based on the Census' 2016–2020 American Community Survey five-year block group averages and include Puerto Rico. Demographic percentages based on different averages may differ. The total population counts are based on the 2020 Decennial Census block populations.

- To avoid double counting, the "Hispanic or Latino" category is treated as a distinct demographic category for these analyses. A person is identified as one of five racial/ethnic categories above: White, African American, Native American, Other and Multiracial, or Hispanic/Latino. A person who identifies as Hispanic or Latino is counted as Hispanic/Latino for this analysis, regardless of what race this person may have also identified as in the Census.

In addition to the analyses described above, the EPA completed a risk-based demographics analysis for the residual risk and technology review (RTR) proposed rule (84 FR 42704, August 16, 2019) and the 2020 RTR final rule (85 FR 42074, July 13, 2020). A description of the demographic analyses and the results are provided in those two *Federal Register* documents.

VI. Request for Comments

We solicit comments on all aspects of this proposed action. In addition to general comments on this proposed action, we are also interested in receiving comments regarding the estimated emissions from UFIP sources, the estimated emissions reductions from the proposed measures, the proposed opacity limits and work practices, individually or together, to reduce emissions from the nonpoint sources, and the estimated costs to comply with the proposed requirements. EPA requests comment on the assumptions regarding the costs of capital, work practices, and emissions. EPA requests comment on the assumption that no additional facilities will close, open, or go idle over the time horizon set in our analysis. EPA acknowledges that other ongoing rulemaking efforts (including those affecting lime manufacturing, coke ovens, taconite iron ore processing, and electric arc furnace sources) may impact facilities in this source category and solicits comments on the cumulative regulatory burden of rules affecting these facilities. We solicit comments of how this proposed action interacts with potential timelines and changes to facilities installing carbon capture and/or using hydrogen or how the regulation might affect steel decarbonization efforts. We solicit comments on potential impacts, if any, on: U.S. manufacturing and supply chains; National Security; projects that use steel and iron for renewable and clean energy projects; aerospace manufacturing; telecommunications; critical infrastructure for national defense, and global competitiveness. We also solicit comment on the creation or retention of jobs and the quality of those jobs. We solicit comment on projects that use iron and steel that are funded by the Infrastructure Investment and Jobs Act (IIJA) (most commonly known as the Bipartisan Infrastructure Bill) and the CHIPS and Science Act.

VII. 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 13563 Improving Regulation and Regulatory Review

This action is a significant regulatory action that was submitted to OMB for review mainly because of the estimated benefits of the estimated $PM_{2.5}$ reductions described above. Any changes made in response to recommendations received as part of Executive Order 12866 review have been documented in the docket.

B. Paperwork Reduction Act (PRA)

The information collection activities in this proposal have been submitted for approval to OMB under the PRA. The information collection request (ICR) document that the EPA prepared has been assigned EPA ICR number 2003.10. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

Respondents/affected entities: Integrated iron and steel manufacturing facilities.

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

Estimated number of respondents: 8 facilities.

Frequency of response: One time.

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 30,400 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: The annual recordkeeping and reporting cost for all facilities to comply with all of the requirements in the NESHAP is estimated to be $3,950,000 per year, of which $3,140,000 per year is for this proposal, and $803,000 is for other costs related to continued

compliance with the NESHAP including $108,000 for paperwork associated with operation and maintenance requirements.

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.

C. 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 would not impose any requirements on small entities. No small entities are subject to the requirements of this rule.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any State, local, or Tribal governments or the private sector.

E. Executive Order 13132: Federalism

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

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

This action does not have tribal implications as specified in Executive Order 13175. 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.

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

Executive Order 13045 (62 FR 19885, April 23, 1997) directs federal agencies to include an evaluation of the health and safety effects of the planned regulation on children in federal health and safety standards and explain why the regulation is preferable to potentially effective and reasonably feasible alternatives. This action is not subject to Executive Order 13045 because the EPA does not believe the environmental health risks or safety risks addressed by this action present a disproportionate risk to children.

H. 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 energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

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

This action involves technical standards. Therefore, the EPA conducted searches for the Integrated Iron and Steel Manufacturing Facilities NESHAP through the Enhanced National Standards Systems Network (NSSN) Database managed by the American National Standards Institute (ANSI). We also conducted voluntary consensus standards (VCS) organizations and accessed and searched their databases. We conducted searches for EPA Methods 1, 2, 2F, 2G, 3, 3A, 3B, 4, 5, 5D, 9, 17, 23, 25A, 26A, 29, and 30B of 40 CFR part 60, appendix A, 320 of 40 CFR part 63 appendix, and SW-846 Method 9071B. During the EPA's VCS search, if the title or abstract (if provided) of the VCS described technical sampling and analytical procedures that are similar to the EPA's referenced method, the EPA ordered a copy of the standard and reviewed it as a potential equivalent method. We reviewed all potential standards to determine the practicality of the VCS for this rule. This review requires significant method validation data that meet the requirements of EPA Method 301 for accepting alternative methods or scientific, engineering, and policy equivalence to procedures in the EPA referenced methods. The EPA may reconsider determinations of impracticality when additional information is available for particular VCS.

No applicable VCS was identified for EPA Methods 1, 2, 2F, 2G, 3, 3A, 3B, 4, 5, 5D, 9, 17, 23, 25A, 26A, 29, 30B and SW-846 Method 9071B not already incorporated by reference in this subpart. The search identified one VCS that was potentially applicable for this rule in lieu of EPA Method 29. After reviewing the available standard, the EPA determined that the VCS identified for measuring emissions of pollutants subject to emissions standards in the rule would not be practical due to lack of equivalency. The EPA is incorporating by reference the VCS ASTM D6348-12(2020), "Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform (FTIR) Spectroscopy". In the September 22, 2008, NTTA summary, ASTM

D6348-03(2010) was determined equivalent to EPA Method 320 with caveats. ASTM D6348-12e1 is a revised version of ASTM D6348-03(2010) and includes a new section on accepting the results from direct measurement of a certified spike gas cylinder, but still lacks the caveats we placed on the D6348-03(2010) version. The voluntary consensus standard ASTM D6348-12e1 has been reaffirmed and is now ASTM D6348-12(2020) and is an acceptable alternative to EPA Method 320 at this time with caveats requiring inclusion of selected annexes to the standard as mandatory. When using ASTM D6348-12(2020), the following conditions must be met:

(1) The test plan preparation and implementation in the Annexes to ASTM D 6348-12(2020), SectionsA1 through A8 are mandatory; and

(2) In ASTM D6348-12(2020) Annex A5 (Analyte Spiking Technique), the percent (%) R must be determined for each target analyte (Equation A5.5). In order for the test data to be acceptable for a compound, %R must be 70 % ≥ R ≤ 130%. If the %R value does not meet this criterion for a target compound, the test data is not acceptable for that compound and the test must be repeated for that analyte (*i.e.*, the sampling and/or analytical procedure should be adjusted before a retest). The %R value for each compound must be reported in the test report, and all field measurements must be corrected with the calculated %R value for that compound by using the following equation:

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

The EPA is also incorporating by reference Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements, Version 2.0 (Final), March 2008 (EPA-454/B-08-002).

Additional information for the VCS search and determination can be found in the memorandum, *Voluntary Consensus Standard Results for National Emission Standards for*

Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing, which is available in the docket for this action. The EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially applicable VCS, and to explain why the EPA should use such standards in this regulation.

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

Executive Order 12898 (59 FR 7629, February 16, 1994) directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on communities with EJ concerns. For this action the EPA conducted an assessment of the impacts that would result from the proposed rule amendments, if promulgated, on various demographic groups living near Integrated Iron and Steel facilities (as described in section V.C of this preamble).

The EPA believes that the human health or environmental conditions that exist prior to this action result in or have the potential to result in disproportionate and adverse human health or environmental effects on communities with EJ concerns. For populations living within 5 km of the nine integrated iron and steel facilities, the percent of the population that is African American is more than twice the national average (27 percent versus 12 percent). Specifically, the percent of the population that is African American is more than 1.5 times the national average within 5 km of six of the nine facilities. The percentage of the population that is living below the poverty level (29 percent) and living below 2 times the poverty level (52 percent) is well above the national average (13 percent and 29 percent, respectively). Specifically, the percent of the population that is living below the poverty level is more than 1.5 times the national

average within 5 km of seven of the nine facilities. Other demographics for the populations living within 5 km are below or near the respective national averages.

The EPA believes that this action is likely to reduce existing disproportionate and adverse effects on communities with EJ concerns. This action requires facilities to improve UFIP emission control resulting in reductions of about 110 tpy of metal HAP and about 820 tpy $PM_{2.5}$. We estimate that all facilities will achieve reductions of HAP emissions as a result of this proposed rule, including the facilities at which the percentage of the population living in close proximity who are African American and below poverty level is greater than the national average.

The information supporting this Executive Order review is contained in sections IV and V of this preamble. The demographic analysis is available in a document titled *Analysis of Demographic Factors for Populations Living Near Integrated Iron and Steel Facilities*, which is available in the docket for this action.

Michael S. Regan,

Administrator