This document is scheduled to be published in the Federal Register on 08/25/2023 and available online at **federalregister.gov/d/2023-16747**, and on **govinfo.gov**

6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[EPA-HQ-OAR-2002-0049; FRL-8150-01-OAR]

RIN 2060-AU96

New Source Performance Standards Review for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is finalizing amendments to the new source performance standards (NSPS) for electric arc furnaces (EAF) and argon-oxygen decarburization (AOD) vessels in the steel industry pursuant to the review required by the Clean Air Act.

DATES: *Effective date:* This final rule is effective **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Compliance dates: Affected sources that commence construction, reconstruction, or modification after May16, 2022, must comply with all requirements of 40 CFR part 60, subpart AAb no later than **[INSERT DATE OF PUBLICATION OF FINAL RULE]** or upon startup, whichever is later. The date for complying with the changes in the current rules, 40 CFR part 60, subparts AA and AAa is **[INSERT DATE 180 DAYS AFTER PUBLICATION OF FINAL RULE]** publication of the final rule. The date for complying with the ERT submission requirements is **[INSERT DATE 180 DAYS AFTER OF PUBLICATION OF FINAL RULE]**.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2002-0049. All documents in the docket are listed on the *https://www.regulations.gov*

website. 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 form. Publicly available docket materials are available electronically through *https://www.regulations.gov*.

FOR FURTHER INFORMATION CONTACT: Donna Lee Jones, Sector Policies and Programs Division (D243-02), P.O. Box 12055, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5251; and email address: *Jones.DonnaLee@epa.gov*.

SUPPLEMENTARY INFORMATION:

Preamble acronyms and abbreviations. Throughout this document 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:

A/C	air-to-cloth
ANSI	American National Standards Institute
AOD	argon-oxygen decarburization
ASME	American Society of Mechanical Engineers
BACT	best available control technology
BID	background information document
BLDS	bag leak detection systems
BPT	benefits per ton
BSER	best system of emissions reduction
CAA	Clean Air Act
CBI	confidential business information
CDX	Central Data Exchange
CEDRI	Compliance and Emissions Data Reporting Interface
CEMS	continuous emission monitoring systems
CFR	Code of Federal Regulations
CO	carbon monoxide
COMS	continuous opacity monitoring systems
DCOT	digital camera opacity technique
DEC	direct shell evacuation control
EAF	electric arc furnace
EIA	economic impact assessment
EJ	environmental justice
EO	executive order
EPA	Environmental Protection Agency

ERT	electronic reporting tool
FR	*Federal Register*
FRED	Federal Reserve Economic Data
GASP	Group Against Smog and Pollution
gr	grains
gr/dscf	grans per dry standard cubic feet
HAP	hazardous air pollutants
ICR	information collection request
II&S	integrated iron and steel industry
ISA	Integrated Science Assessment for Particulate Matter
LAER	Lowest Achievable Emission Rate
lb	pounds
lb/ton	pounds per ton
mg/dscm	milligrams per dry standard cubic meters
NAICS	North American Industry Classification System
NAPCTAC	National Air Pollution Control Technical Advisory Committee
NOx	nitrogen oxides
NSPS	new source performance standards
NTTAA	National Technology Transfer and Advancement
OAQPS	Office of Air Quality Planning and Standards
OMB	Office of Management and Budget
PDF	portable document format
PM	particulate matter
$PM_{2.5}$	particulate matter less than 2.5 micrometers
PRA	Paperwork Reduction Act
PS	performance specification
RACT	reasonably available control technology
RFA	Regulatory Flexibility Act
RIN	regulatory information number
SMA	Steel Manufacturers Association
SSM	startup, shutdown, and malfunction
tpy	tons per year
UMRA	Unfunded Mandates Reform Act of 1995
U.S.	United States
U.S.C.	United States Code
VCS	voluntary consensus standard
VE	visible emissions

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I. General Information

A. Does this action apply to me?

The source category that is the subject of this final action is composed of steel manufacturing facilities that operate electric arc furnaces (EAF) and argon-oxygen decarburization (AOD) vessels regulated under CAA section 111 New Source Performance Standards (NSPS). The 2022 North American Industry Classification System (NAICS) code for the source category is 331110 for “Iron and Steel Mills and Ferroalloy Manufacturing”

processes. The NAICS code serves as a guide for readers outlining the type of entities that this final action is likely to affect. The NSPS codified in 40 CFR part 60, subpart AAb are directly applicable to affected facilities that begin construction, reconstruction, or modification after May 16, 2022. Final amendments to 40 CFR part 60, subpart AA are applicable to affected EAF and AOD facilities that begin construction, reconstruction, or modification after October 21, 1974, and on or before August 17, 1983. Final amendments to 40 CFR part 60, subpart AAa are applicable to affected EAF and AOD vessels facilities that begin construction, reconstruction, or modification after August 17, 1983, and on or before May 16, 2022. Federal, state, local and Tribal government entities would not be affected by this action. If you have any questions regarding the applicability of this action to a particular entity, you should carefully examine the applicability criteria found in 40 CFR part 60, subparts AA, AAa, and AAb, and consult the person listed in the **FOR FURTHER INFORMATION CONTACT** section of this preamble, your state air pollution control agency with delegated authority for NSPS, or your EPA Regional Office.

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

In addition to being available in the docket, an electronic copy of this final action is available on the Internet at *https://www.epa.gov/stationary-sources-air-pollution/electric-arc-furnaces-eafs-and-argon-oxygen-decarburization*. Following publication in the *Federal Register*, the EPA will post the *Federal Register* version of the final rule and key technical documents at this same website.

C. Judicial Review and Administrative Review

Under Clean Air Act (CAA) section 307(b)(1), judicial review of this final action is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or

criminal proceedings brought by the EPA to enforce the requirements.

Section 307(d)(7)(B) of the CAA further provides that "[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review." This section also provides a mechanism for the EPA to convene a proceeding for reconsideration, "[i]f the person raising an objection can demonstrate to the EPA that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment, (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule." Any person seeking to make such a demonstration to us should submit a Petition for Reconsideration to the Office of the Administrator, U.S. Environmental Protection Agency, Room 3000, WJC West Building, 1200 Pennsylvania Ave. NW, Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460.

II. Background

A. What is the statutory authority for this final action?

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

sizes within categories in establishing the standards.

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

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

Pursuant to the definition of new source in CAA section 111(a)(2), standards of performance apply to facilities that begin construction, reconstruction, or modification after the date of publication of the proposed standards in the *Federal Register*. Under CAA section 111(a)(4), "modification" means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted. Changes to an existing facility that do not result in an increase in emissions are not considered modifications. Under the provisions in 40 CFR 60.15, reconstruction means the replacement of components of an existing facility such that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility; and (2) it is technologically and economically feasible to meet the applicable standards. Pursuant to CAA section 111(b)(1)(B), the standards of performance or revisions thereof shall become effective upon promulgation.

B. How does the EPA perform the NSPS review?

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

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

- Expected growth for the source category, including how many new facilities, reconstructions, and modifications may trigger NSPS in the future.
- Pollution control measures, including advances in control technologies, process

operations, design or efficiency improvements, or other systems of emission reduction, that are "adequately demonstrated" in the regulated industry.

- Available information from the implementation and enforcement of current requirements indicates that emission limitations and percent reductions beyond those required by the current standards are achieved in practice.
- Costs (including capital and annual costs) associated with implementation of the available pollution control measures.
- The amount of emission reductions achievable through application of such pollution control measures.
- Any nonair quality health and environmental impact and energy requirements associated with those control measures.

In evaluating whether the cost of a particular system of emission reduction is reasonable, the EPA considers various costs associated with the particular air pollution control measure or a level of control, including capital costs and operating costs, and the emission reductions that the control measure or particular level of control can achieve. The Agency considers these costs in the context of the industry's overall capital expenditures and revenues. The Agency also considers cost-effectiveness analysis as a useful metric, and a means of evaluating whether a given control achieves emission reduction at a reasonable cost. A cost-effectiveness analysis allows comparisons of relative costs and outcomes (effects) of 2 or more options. In general, cost effectiveness is a measure of the outcomes produced by resources spent. In the context of air pollution control options, cost effectiveness typically refers to the annualized cost of implementing an air pollution control option divided by the amount of pollutant reductions realized annually.

After the EPA evaluates the statutory factors, the EPA compares the various systems of emission reductions and determines which system is "best," and therefore represents the BSER. The EPA then establishes a standard of performance that reflects the degree of emission

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

C. What is the source category regulated in this final action?

The EPA first promulgated NSPS under CAA section 111 for EAF at steel plants source category on September 23, 1975 (40 FR 43850). These standards of performance are codified in 40 CFR part 60, subpart AA and are applicable to sources that commence construction, modification, or reconstruction after October 21, 1974, and on or before August 17, 1983. These standards of performance regulate emissions of particulate matter (PM) from EAF capture systems and control devices with a PM concentration limit of 12 milligrams per dry standard cubic meter (mg/dscm) [0.0052 grains per dry standard cubic feet (gr/dscf)] and set opacity limits for using capture technology controlling EAF melt shop emissions, which include, but are not limited to, emissions via roof vents, doors, and cracks in walls of 6 percent opacity, with 20 percent and 40 percent opacity allowed during charging and tapping, respectively; control device exhaust at 3 percent opacity due to proper operation of control devices; and dust handling procedures due to proper handling of captured PM at 10 percent opacity.

In 1984, the NSPS rule, 40 CFR part 60, subpart AA (for EAF constructed after October 21, 1974, and on or before August 17, 1983) was reviewed and revised as part of NSPS statutory review (49 FR 43838; October 31, 1984). The 1984 action amended 40 CFR part 60, subpart AA

to include AOD and raise the melt shop opacity from 0 percent to 6 percent opacity, keeping the exceptions for charging (20 percent opacity) and tapping (40 percent opacity). The 1984 action also codified a new NSPS subpart, 40 CFR part 60, subpart AAa, to regulate EAF and AOD vessels that commenced construction after August 17, 1983 (49 FR 43843). The NSPS codified at 40 CFR part 60, subpart AAa set requirements for melt shop opacity at 6 percent with no exceptions. Finally, the 1984 action promulgated requirements to include EPA Method 5D (Appendix A to 40 CFR part 60) for the determination of PM emissions from positive-pressure fabric filters, which are common control devices for EAF and AOD vessels for both 40 CFR part 60, subparts AA and AAa.

On February 14, 1989, 40 CFR part 60, subparts AA and AAa (and Appendix A to 40 CFR part 60) were amended to consolidate the EPA test methods and delete repetitions of methods already referenced (54 FR 6672). Then, on May 17, 1989, minor clarifications and corrections were made to the February 1989 revisions (54 FR 21344). On March 2, 1999, as a result of recommendations made by the EPA's sector policy established in 1994,[1] called the "Common Sense Initiative," 40 CFR part 60, subparts AA and AAa were amended to add an option to monitor furnace static pressure instead of melt shop opacity and to monitor baghouse (fabric filter) fan amperage instead of baghouse flowrate (64 FR 10109). On October 17, 2000, amendments were made to 40 CFR part 60, subparts AA and AAa to promulgate Performance Specification (PS) 15 for certifying continuous emission monitoring systems (CEMS) with Fourier transform infrared spectroscopy (FTIR); to reformat various methods as per recommendations by the Environmental Monitoring Management Council; and to make miscellaneous clarifications and technical and editorial corrections (65 FR 61758). On February 22, 2005, 40 CFR part 60, subparts AA and AAa were amended in response to a petition by the American Iron and Steel Institute, Steel Manufacturers Association (SMA), and Specialty Steel

[1] See *Analysis and Evaluation of the EPA Common Sense Initiative*. Prepared by: Kerr Greiner, Andersen, and April, Inc. Funded by the U.S. Environmental Protection Agency under PO No. No. 9W-0753-NTSA. 1999. Available at https://NEPIS.epa.gov.

Industry of North America to add bag leak detection systems (BLDS) as an alternative monitoring method to the continuous opacity monitoring systems currently cited in the rules (70 FR 8523).

An EAF is a metallurgical furnace used to produce carbon and alloy steels. The input material to an EAF is typically almost 100 percent scrap steel. Cylindrical, refractory-lined EAF are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated to permit charging scrap steel into the EAF by overhead crane. Alloying agents and fluxing materials usually are added through doors on the side of the furnace. Electric current is passed between the electrodes and through the scrap, producing an arc and generating enough heat to melt the scrap steel charge. After the melting and refining periods, impurities (in the form of slag[2]) and the refined steel are poured from the furnace, in a process called "tapping." If AOD vessels are present, they follow the EAF in the production sequence and are used to oxidize carbon, silicon, and impurities, such as sulfur. For these reasons, the AOD vessels reduce additions of alloying material compared to an EAF alone. Use of AOD vessels also reduce EAF heat times, improve quality control, and increase daily steel production. AOD vessels are primarily used in stainless steel making.

The production of steel in an EAF is a batch process. Cycles, also called heats, range from about 1.5 to 5 hours to produce carbon steel and from 5 to 10 hours to produce alloy steel. Scrap steel is charged to begin a cycle, with alloying agents and slag forming materials added later in the process for refining purposes. The stages of each cycle normally include charging, melting, refining (which also usually includes oxygen blowing), and tapping, all of which generate PM emissions.

Air emission control techniques typically involve an air emission capture system and a gas cleaning system. The air emission capture systems used in the EAF industry include direct

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[2] Slag is the molten metal oxides and other impurities that float to the surface of the molten steel product.

shell evacuation control (DEC) systems, side draft hoods, combination hoods, canopy hoods, scavenger ducts, and furnace enclosures. The DEC system consists of ductwork attached to a separate opening, or "fourth hole," in the furnace roof (top) that draws emissions from the furnace to a gas cleaner and which works only when the furnace is up-right and the roof is in place. Side draft hoods collect furnace exhaust gases from around the electrode holes and work doors after the gases leave the furnace. Combination hoods incorporate elements from the side draft and direct shell evacuation systems. Canopy hoods and scavenger ducts are used to address charging and tapping emissions. Baghouses, also called fabric filters, are typically used as gas cleaning systems (*i.e.*, emissions control devices).

There are approximately 88 EAF in the United States (U.S.), with most (> 95 percent) EAF subject to one of the EAF NSPS subparts. Thirty-one states have one or more EAF facilities, with most of the EAF facilities east of the Mississippi River. Pennsylvania (15), Ohio (10), Alabama (7), and Indiana (7) have the most EAF facilities per state (approximate number of EAF facilities in each state).

The EPA proposed amendments to the NSPS subparts AA and AAa, and a new subpart AAb, based on the current review on May 16, 2022 (87 FR 29710). We received 11 comments from industry, environmental groups, state environmental agencies, and others during the comment period. A summary of the more significant comments we timely received regarding the proposed rule and our responses are provided in this preamble. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in the document *Summary of Public Comments and Responses for Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974, and On or Before August 17, 1983; and Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels, Docket ID No. EPA-HQ-OAR-2002-0049* located in the docket for this rule. In this action, the EPA is finalizing decisions and revisions pursuant to CAA section 111(b)(1)(B) review for Steel Plants: Electric Arc Furnaces (EAF) and Argon-Oxygen

Decarburization Vessels NSPS (40 CFR part 60, subpart AAa) after our considerations of all the comments received.

D. What outreach and engagement did the EPA conduct?

As part of this rulemaking, and pursuant to multiple Executive Orders addressing environmental justice, the EPA engaged and consulted with the public, including populations of overburdened communities and low-income populations, through interactions, such as a letter sent on May 17, 2022, to 40 leaders of Tribal nations (see Docket ID No. EPA-HQ-OAR-2002-0049). The EPA received comments from the following environmental groups during the comment period: Group Against Smog and Pollution (GASP), Fairfield Environmental Justice Action Coalition (FEJA), Sierra Club, California Communities Against Toxics, and Greater Birmingham Alliance to Stop Pollution, et al. These opportunities gave the EPA a chance to hear from the public, especially communities potentially impacted by this final action.

Some of the key issues raised by environmental justice stakeholders included a specific area of the country where there are PM problems and where there are 2 EAF facilities; and regulating other pollutants, such as sulfur dioxide (SO_2) and greenhouse gases (GHG). Section V of the preamble provides a description of how the Agency considered these comments in the context of regulatory development.

III. What changes did we propose for the Steel Plants: Electric Arc Furnaces (EAF) and Argon-Oxygen Decarburization Vessels NSPS?

On May 16, 2022, the EPA proposed the results of the review of the EAF and AOD source category standards of performance to determine if revisions were warranted pursuant to CAA section 111(b)(1)(B).

Pursuant to this review, we proposed to revise the NSPS for EAF and AOD vessels. We also proposed several clarifications and corrections to existing NSPS rules (40 CFR part 60, subparts AA and AAa). These proposed actions are discussed below in sections III.A and III.B. We also proposed: periodic compliance testing at least once every 5 years; results of the review

of opacity from control device exhaust and from dust handling systems to keep same BSER and limits as in 40 CFR part 6, subpart AAa of 3 percent and 10 percent, respectively; that the emission limits would apply at all times; and electronic reporting.

A. Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed, Reconstructed, or Modified After May 16, 2022

1. Analyses to Determine BSER for Melt Shop Opacity and PM Emissions from Control Devices

The EPA proposed to determine that the use of a baghouse with a fabric filter is the BSER for EAF and AOD vessels. The EPA proposed that a limit of at 0.16 pounds (lb) PM emitted per ton steel produced (lb/ton) reflects the degree of emission limitation achievable through application of the BSER. The EPA also proposed to determine using a partial roof canopy to control visible fugitive emissions (VE) from EAF and AOD in the melt shop is BSER. The EPA proposed that a limit of 0 percent opacity during all phases of EAF operation reflects the degree of emission limitation achievable through application of the BSER.

The BSER and proposed standards of performance for PM emissions from capture systems and fabric filters, and for capture of emissions from melt shops was developed from an analysis of EAF PM test reports from 2005 through 2017 obtained by the EPA. The PM data contained in these reports reflected 33 facilities, 46 EAF, 5 AOD, and 54 baghouses in 154 emission and opacity tests (hereafter referred to as the "EAF dataset"). The EAF dataset showed a substantial improvement in EAF, AOD, and baghouse performance beyond the current NSPS PM standards (40 CFR part 60, subparts AA, AAa) for control devices as well as for melt shop opacity. The costs of control, emissions reductions, and other factors were used in the determination of BSER, as explained in next sections.

a. BSER for Melt Shop Opacity

From the EAF dataset described earlier in this preamble, the EPA identified 15 EAF facilities, approximately half of the EAF dataset, that reported 0 percent melt shop opacity. To determine BSER and its costs to reduce melt shop opacity at EAF facilities from 6 percent to 0

percent opacity, the costs for an addition of a partition roof canopy (above the crane rails) were estimated for the proposal. Canopy hoods are a common method of controlling fugitive EAF emissions. In the proposal cost analysis, we estimated that the annual costs would be $800,000 ($2020[3]) for a medium-sized steelmaking EAF with installation of a partition roof canopy (above the crane rails). With an estimated PM reduction of 730 tpy to achieve 0 percent melt shop opacity down from the current 6 percent opacity (in 40 CFR part 60, subparts AA, AAa), the cost effectiveness in $2020 was estimated to be $1,100 per ton PM removed ($2020). Similar results were obtained for both small and large EAF. Based on the BSER analysis as explained at proposal, the EPA proposed that BSER for melt shop is a partition roof canopy (above the crane rails) and proposed in 40 CFR part 60, subpart AAb to revise the opacity limit to 0 percent to limit visible emissions from EAF and AOD that exit from the melt shop during all phases of operation.

b. Capture System, Baghouse, and Facility-Wide Total PM Control Device Emission Limit

The EPA proposed as the BSER a capture system and fabric filter. For the standard, we proposed a facility-wide mass-based PM limit from all EAF and AOD capture systems and control devices of 0.16 lb total PM per ton steel instead of a PM concentration limit that applies to each capture system and control device, which is the format of the current standards in 40 CFR part 60, subparts AA, AAa. As explained in the proposal, the EPA proposed a facility-wide mass-based PM limit because this form of standard was thought to result in better overall PM control and provide greater assurance of limiting PM emissions from the facility. Most importantly, if EAF emissions can be divided up into separate baghouses, for practical purposes or otherwise, with each device falling under the same NSPS PM limit based on air flow in gr/dscf, there is no accounting for the total PM emissions from the facility. A facility-wide total control device PM emissions limit in units of lb PM/ton of steel produced was expected to

[3] The cost analyses for the 2022 proposal used a 3.25 percent interest rate. Federal Reserve Economic Data (FRED). Bank Prime Loan Rate Changes: Historical Dates of Changes and Rates. Available at: https://fred.stlouisfed.org/series/PRIME. Accessed 11/6/2020.

eliminate the disparity in control device emissions between low- and high-PM concentration exhaust, such as that for control devices for primary emissions (*i.e*., directly from the EAF or AOD) v. secondary emissions (*i.e.*, from fugitive emissions), as well as the disparity between well-operated v. inefficiently-operated control devices in the cases where both types of control devices operate below the current individual baghouse limit in 40 CFR part 60, subparts AA, AAa.

To evaluate the BSER to reduce emissions from EAF and AOD capture systems and control devices, the EPA evaluated the baghouse air-to-cloth (A/C) ratio, expressed in units of volume of air flow per unit bag area (*i.e*., cloth), using EAF facility baghouse model plants developed from the EPA dataset describe earlier in this preamble (87 FR 29718-29720). This was done to evaluate BSER, of which cost is a factor. The A/C ratio is generally accepted as the most important design parameter between baghouses of different performance levels, where a low A/C ratio is considered to be the best level of control (less air and more baghouse filter cloth) and a high A/C ratio is a low or poor level control (high air volume and low baghouse filter area).

Using model plants developed from the EAF dataset and the EPA cost-estimating procedures,[4] an A/C ratio of 2.2 m/min (7.2 ft/min) leading to a value of 0.16 lb total PM per ton steel produced was determined to be cost effective (87 FR29710). For a medium-sized model plant consisting of an EAF and all its baghouses, *i.e.*, EAF facility, emitting 0.16 lb PM/ton steel produced, the cost effectiveness at this lb/ton level was approximately $1,800 per ton PM removed $2020, an acceptable cost effectiveness, with an incremental cost effectiveness compared to a model plant at the next higher level of control (A/C ratio of 4.9 ft/min) at $8,500/ton $2020, which was not considered reasonable. Similar results were obtained for small

[4] *Cost Analyses to Determine BSER for PM Emissions and Opacity from EAF Facilities*. D.L. Jones, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, and G.E. Raymond, RTI International, Research Triangle Park, North Carolina. May 1, 2023 (Docket ID No. EPA-OAR-2002-0049).

and large EAF. Therefore, a facility-wide total 0.16 lb PM/ton steel produced limit from capture systems and control devices was proposed to represent performance level for the BSER for EAF and AOD capture systems and fabric filters for 40 CFR part 60, subpart AAb.

2. Requirement for Compliance Testing Every Five Years

We proposed that sources complying with 40 CFR part 60, subpart AAb would be required to perform compliance testing every 5 years after the initial testing performed upon startup, as required under 40 CFR part 60.8. This requirement already is required in many of the permits for existing EAF in the EAF dataset and in the industry, and also is a standard requirement for testing for other sources of PM emissions for many other industrial sectors.

3. Review of EAF NSPS Standards for Opacity from EAF Control Devices and Dust Handling Systems

The current NSPS standards for EAF in 40 CFR part 60, subparts AA and AAa, require less than 3 percent opacity from control device (baghouse) exhaust and less than 10 percent for dust handling procedures. We proposed to retain these limits in 40 CFR part 60, subpart AAb. (87 FR 29720-29721). In reviewing the EAF dataset, the EPA based these limits on the fact that no facilities reported lower levels of opacity for these sources, nor were lower levels required in any permits for these or any other EAF facilities. In addition, commensurate with determinations reported in the RACT/BACT/LAER Clearinghouse,[5] the current levels for baghouse exhaust (9 facilities) and dust handling systems (3 facilities) in 40 CFR part 60, subparts AA, AAa were considered BACT. Therefore, we concluded in the proposal that the opacity standards for control device exhaust and dust handling systems would remain the same.

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[5] See *https://www.epa.gov/catc/ractbactlaerclearinghouse-rblc-basic-informatio*n for more information. RACT, or reasonably available control technology, is required on existing sources in areas that are not meeting national ambient air quality standards (*i.e.*, nonattainment areas); BACT, or best available control technology, is required on major new or modified sources in clean areas (*i.e.*, attainment areas); and LAER, or lowest achievable emission rate, is required on major new or modified sources in nonattainment areas. See the RACT/BACT/LAER determinations made for EAF in the cost memorandum prepared for proposal (03-01-22); Docket ID No. EPA-HQ-OAR-2002-0049-0060.

4. Startup, Shutdown, Malfunction Exemption Removal from 40 CFR Part 60, Subpart AAb

The NSPS general provisions (40 CFR 60.11(c)) currently exclude opacity requirements during periods of startup, shutdown and malfunction (SSM). We proposed that opacity limits in 40 CFR part 60, subpart AAb would apply at all times along with all other emissions limits and standards, as provided in 40 CFR 60.11(f), because we concluded in the proposal that there were no technical limitations known to prevent new, reconstructed, or modified facilities from meeting all standards at all times. The language overriding the general provisions SSM opacity exemption was proposed for 40 CFR part 60, subpart AAb at 40 CFR 60.272b(c).

In its 2008 decision in *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), the United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some CAA section 112 standards apply continuously. The EPA has determined the reasoning in the court's decision in *Sierra Club* applies equally to CAA section 111 because the definition of emission or standard in CAA section 302(k), and the embedded requirement for continuous standards, also applies to the NSPS. Therefore, consistent with *Sierra Club*, we proposed the NSPS standards in the 40 CFR part 60, subpart AAb would apply at all times.

5. Electronic Reporting for 40 CFR Part 60, Subparts AA, AAa, and AAb

The EPA proposed the requirement that owners and operators of EAF and AOD subject to the current and new NSPS at 40 CFR part 60, subparts AA, AAa, and AAb submit electronic copies of required performance test reports and any semiannual excess emissions and continuous monitoring system performance and summary reports, through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). The proposed rule required that performance test/demonstration of compliance results collected using test

methods that are supported by the EPA's Electronic Reporting Tool (ERT) as listed on the ERT website[6] at the time of the test be submitted in the format generated through the use of the ERT or an electronic file consistent with the xml schema on the ERT website, and other performance test/demonstration of compliance results be submitted in portable document format (PDF) using the attachment module of the ERT.

For semiannual reports, the proposed rule required that owners and operators use the appropriate spreadsheet template to submit information to CEDRI. The final versions of the templates for these reports are included in the docket for this action.[7] Additionally, the EPA identified the circumstances in which electronic reporting extensions may be provided.

B. Proposed Changes to Current NSPS, 40 CFR part 60, subparts AA and AAa

We proposed the following amendments and requested comments on the existing NSPS rules for EAF, 40 CFR part 60, subpart AA, and EAF and AOD, 40 CFR part 60, subpart AAa, to update, correct, or clarify these rules to enhance compliance and enforcement.

- Amendments to clarify and refine the rule requirements in 40 CFR part 60, sections 60.271 and 60.271a ''Definitions'', 60.272 and 60.272a ''Standard for particulate matter'', 60.273 and 60.273a ''Emission monitoring'', 60.274a ''Monitoring of operations'', 60.275a ''Test methods and procedures'', and 60.276a ''Recordkeeping and reporting requirements''.
- Minor revisions to clarify the rule and enhance compliance and enforcement.
- Solicited comments, data, and other information on whether the EPA should change the time to both find and fix the cause of a BLDS alarm from 3 hours to a longer timeframe (*e.g.*, 24 hours as in other rules), or some other duration.

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

[7] See 40 CFR Part 60, Subpart AA, AAa, and AAb, *Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels*, 40 CFR Part 60.276(g) Semiannual Compliance Report Spreadsheet Template, available at Docket ID No. EPA-HQ-OAR-2002-0049-0064.

- Requirement that owners and operators of EAF facilities submit electronic copies of required performance test/demonstration of compliance reports and semiannual reports through the EPA's CDX using the CEDRI and ERT.
- Requirement that performance test/demonstration of compliance results collected using test methods that are supported by the EPA's ERT as listed on the ERT website[8] at the time of the test be submitted in the format generated through the use of the ERT or an electronic file consistent with the xml schema on the ERT website, and other performance test/demonstration of compliance results be submitted in PDF using the attachment module of the ERT.
- For semiannual reports, requirement that owners and operators use the appropriate spreadsheet template to submit information to CEDRI.

IV. What actions are we finalizing, and what is our rationale for such decisions?

The EPA is finalizing revisions to the NSPS for EAF and AOD at steel plants pursuant the CAA section 111(b)(1)(B) review. The EPA is promulgating the NSPS revisions in a new subpart, 40 CFR part 60, subpart AAb that are applicable to affected facilities constructed, modified, or reconstructed after May 16, 2022. The new subpart reflects a BSER for a PM capture system and fabric filter, and a total facility limit for PM from control devices in units of lb PM/ton steel produced, and a canopy hood to capture melt shop VE, and a 0 percent opacity limit during melting and refining.

We also are finalizing results of the review of opacity from control device exhaust and from dust handling systems to keep same BSER and limits as in 40 CFR part 60, subpart AAa of 3 percent and 10 percent, respectively; that the emission limits would apply at all times; periodic compliance testing at least once every 5 years; and electronic reporting.

The facility-wide PM limit of 0.16 lb/ton as finalized will apply to all EAF and AOD

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

control devices subject to 40 CFR part 60, subpart AAb and also all the air pollution control equipment used to remove particulate matter from the effluent gas stream generated by the EAF and AOD. The melt shop opacity standard of 0 percent as finalized will apply during the melting and refining period, and a 6 percent opacity limit will apply during the charging period and during the tapping period, with daily opacity or VE testing required during all 3 periods. We are finalizing that the PM limit of 0.16 lb/ton standard apply at all times, including during SSM, and that an opacity limit will also apply at all times (*i.e.*, 6 percent opacity during charging and tapping and 0 percent opacity at all other times). We are finalizing the requirement to submit the required compliance test reports through CDX using CEDRI and the ERT.

We also are finalizing clarifications and corrections to the 2 existing EAF rules: 40 CFR 60 subpart AA, Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed After 10/21/74 & On or Before 8/17/83; and 40 CFR 60 subpart AAa, Standards of Performance for Steel Plants: Electric Arc Furnaces & Argon-Oxygen Decarburization Constructed After 8/17/83 and On or Before May 16, 2022. For these rules, we are finalizing amendments to certain parts of the current NSPS standards and to allow 24 hours for owners and operators a find and fix the cause of a BLDS alarm.

A. NSPS Requirements for PM Emissions from Control Devices for Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After May 16, 2022

1. What did we propose as the BSER determination and standard of performance for PM emissions from EAF control devices?

We proposed that BSER for new, modified, and reconstructed EAF and AOD sources is a capture system and fabric filter. We proposed that the PM limit that reflects BSER is a total facility emission rate of 0.16 lb PM/ton of steel from control devices at an affected facility. The EPA proposed a facility-wide mass-based PM limit from all EAF and AOD control devices per ton of steel produced instead of a PM concentration limit based on mass of PM per control device air flow that applies to each control device, which is the format of the standards in 40

CFR part 60, subparts AA, AAa.

2. What significant comments did we receive and what are our responses?

Comment: One commenter asserted that the form of the standard should not be changed from the original form of the standard in NSPS subpart AAa. The commenter stated for the NSPS subpart AAa rulemaking, the EPA rejected a production-based (or mass-based) standard in favor of a concentration-based limit in a NSPS proposed rule that was published on August 17, 1983. The commenter notes that, in that 1983 FR document, the EPA stated:

"A process weight format is based on a direct relationship between the quantity of pollutant emitted and the amount of input material consumed or product produced. Because of wide differences between EAF and AOD shops in operating procedures, such as the length of the steel production cycle, grade of steel produced, control technologies, vessel capacities, and other operating parameters, a simple direct relationship between mass emissions and steel production does not exist. Therefore, a process weight format was not selected for control devices regulated by the proposed standards."

"Methodology to measure the concentration of emissions discharged to the atmosphere from control devices is readily available and well demonstrated. Concentration measurements are obtained directly from the stack emission test data. A concentration standard can be met equally well by a large or a small shop and by carbon and specialty steel shops. Consequently, a concentration format (*i.e.*, mass emissions per unit volume of gas) was selected for control devices regulated by the proposed standards to ensure control of captured process and fugitive emissions." (48 FR 37347)

The commenter continued that the EPA provides no explanation for the change in its position and fails to address the rationale the Agency provided in 1983 for adopting the current grain-loading standards in NSPS subpart AA and NSPS subpart AAa.

Another commenter added that the EPA's failure to justify this "depart[ure] from a prior policy" would render abandonment of the current concentration-based standard "arbitrary and

capricious," citing to *FCC v. Fox Television Stations, Inc*., 556 U.S. 502, 515-16 (2009).

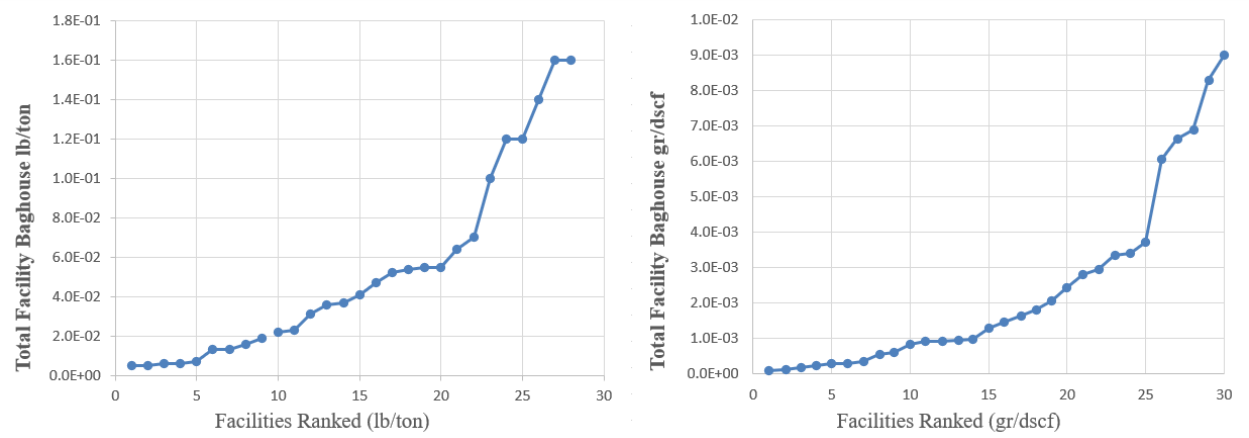
EPA Response: The EPA disagrees with the comment that the EPA did not provide an adequate explanation for changing the form of the standard from concentration-based to a production-based limit. The new format of the EAF NSPS subpart AAb, in units of lb/ton, ensures compliance as well as ensures that every facility is accountable for the total PM contribution from its EAF to the environment in the nearby community for every unit of steel produced. The EPA fully explained its justification for use of lb/ton format in the 2022 proposal, as follows here.

In the 2022 proposal, we explained that the emissions, and, hence, collected PM, from baghouses that control only secondary emissions can be much lower than the other two types of baghouses, as seen in the EAF dataset where the baghouse with the lowest PM emissions controlled only secondary emissions (87 FR 29715). We also explained that because of the inherent lower baghouse PM input (loading), secondary baghouses can be operated inefficiently without exceeding the current NSPS limit, which is expressed in the units of mass PM per unit of control device exhaust air. In addition, where there is a standard in terms of mass PM per unit of total exhaust air, baghouse dilution air (added to EAF exhaust air) can be increased with the effect of lowering measured baghouse PM emission concentration and disguising the true performance of the baghouse.

Further, at 87 FR 29715, the EPA proposed to set a facility-wide PM limit instead of a limit that applies to each control device (the format of the current standard) because we think this form of standard will result in better control and provide greater assurance of compliance. Most importantly, if EAF emissions can be divided up into separate baghouses, for practical purposes or otherwise, with each device falling under the same NSPS PM limit, there is no accounting for the total PM emissions from the facility. A facility-wide total control device PM emissions limit in units of lb of PM per ton of steel produced also would alleviate the potential disparity in control device emissions between low-and high-loading control devices, such as that for control

devices for primary v. secondary emissions, as well as for well-operated v. inefficiently-operated control devices that both operate below the individual baghouse limit (87 FR 29715). Therefore, we did adequately explain our change in position at the proposal and also explained why we now think a facility-wide limit is more protective than a concentration-based limit, thereby satisfying the standard in *Fox Television*. See 556 U.S. at 515-16 (when the Agency acknowledges change in position, "it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the Agency believes it to be better, which the conscious change of course adequately indicates").

The commenter did not include any current data showing the lack of a direct relationship between mass emissions and steel production. The graphs in Figure 1 from the memorandum titled *Particulate Matter Emissions from Electric Arc Furnace Facilities*,[9] hereafter called the "Emissions Memorandum," show a similar curve shape when data for the total EAF facility average concentration of PM in gr/dscf from the 2010 EPA/EAF data set[10] are plotted compared to the same PM data expressed as lb/ton PM emissions.



[9] *Particulate Matter Emissions from Electric Arc Furnace Facilities*. D.L. Jones, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, and G.E. Raymond, RTI International, Research Triangle Park, North Carolina. May 1, 2023. (Docket ID No. EPA-OAR-2002-0049-0061**).**

[10] In 2010, the EPA acquired EAF data from approximately 30 EAF facilities via a CAA section 114 test and information request. These data are located in the docket for the EAF NESHAP, 40 CFR part 63, subpart YYYYY at *https://www.regulations.gov/docket/EPA-HQ-OAR-2004-0083* and incorporated by reference into the docket for the EAF NSPS at *https://www.regulations.gov/docket/EPA-HQ-OAR-2002-0049*.

Figure 1. Curves of PM in gr/dscf and lb/ton for All 30 EAF Facilities in EPA EAF Dataset

In 1973, the EPA originally presented a NSPS standard in units of lb/hr-ton during the National Air Pollution Control Technical Advisory Committee (NAPTAC) meeting when the EAF NSPS was first being developed, as described in the 1974 *Background Information for Standards of Performance*[11] (BID). On February 22, 1973, the Agency presented to the National Air Pollution Control Techniques Advisory Committee (NAPCTAC) a draft standard PM limitation of 0.06 lb/hr-ton. However, this standard was ultimately not used by the EPA for the NSPS because of the industry objections with the lb/ton format and interest in the concentration-based limit.

It should be noted that the first promulgated NSPS limit, at 0.0052 gr/dscf, was based on test data from only one facility, as described in the 1974 BID[12] for EAF under 40 CFR part 60, subpart AA, the original EAF NSPS.

Preliminary investigations for the NSPS identified 30 plants from a review of the literature and contacts with industry, a described in the 1974 BID, discussed earlier in this section. From these 30 plants, 11 plants were identified that reportedly were well-controlled for PM emissions. Ten of the 11 facilities were visited, their visible emissions evaluated, and information obtained on the process and control equipment. Although many of the 11 plants practiced good control techniques, the facilities at only 3 plants (Plants A, I and J) were amenable to testing with EPA Method 5. Other facilities were not suitable for emission measurements because they use positive pressure baghouses, which have no stacks. Although

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[11] *Background Information for Standards of Performance: Electric Arc Furnaces in the Steel Industry, Volume 1: Proposed Standards*. Publication No. EPA-450/2-74-017a. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina (October 1974).

[12] *Background Information for Standards of Performance: Electric Arc Furnaces in the Steel Industry, Volume 1: Proposed Standards*. Chapter V. Summary of the Procedure For Developing Standards, Section D, Plant Inspections. Publication No. EPA-450/2-74-017a. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina (October 1974. pg. 63 (pdf pg. 88)).

development work was in progress, sampling methodology for this type of installation had not been standardized. These 3 plants were nearly identical except for size. They all produced alloy steels and controlled PM emissions with a building evacuation system. Each had a fabric filter control device that exhausted through multiple stacks. Rather than spread the test program effort over 3 tests at nearly identical plants, it was decided a more comprehensive test of one plant would provide more information. The middle-sized plant offered the best possibilities for this comprehensive test. Its size was typical of the mid-range for the industry, and the fabric filter did not have an inordinately large number of exhaust stacks.

To show that a mass-based limit has been considered by the EPA previously, the chronological history of the EAF NSPS subpart AA and AAa standards for PM from control devices, as taken from the 1974 BID, discussed earlier in this section, is as follows:

- In 1972, 299 EAF's in the United States were operated by 99 companies at 121 locations. On February 22, 1973, the Agency presented to the NAPCTAC a draft standard PM limitation of 0.06 pound per hour-ton (lb/hr-ton). Steel industry representatives attending the meeting suggested that the PM standard should be 0.244 lb/hr-ton.
- On May 30 and 31, 1973, at another NAPCTAC meeting, the EPA presented a revised draft technical report and standard. The PM standard presented by the EPA was changed from 0.06 lb/hr-ton to 0.10 lb/hr-ton. The industry representatives at the meeting suggested that the standard be expressed on a concentration basis and be set at 0.008 grains per dry standard cubic feet (gr/dscf) for a dry collector (*e.g.*, baghouse or fabric filter) and 0.02 gr/dscf for a wet collector (scrubber).
- At the January 9, 1974, NAPCTAC meeting, available emission data indicated that a 0.0039 gr/dscf PM standard could be easily achieved. These data were supported by a vendor guarantee of 0.004 gr/dscf on fabric filters at 3 building evacuation systems at 3 similar shops. These shops, owned by one company at one location, produced alloy

steel. Another vendor also signed a statement that they would guarantee 0.004 gr/dscf on a system planned for the capture of charging and tapping emissions at a plant which produced carbon steel. Two other vendors stated that although 0.004 gr/dscf was achievable for fabric filters designed to treat large volumes of exhaust gas with low concentrations of PM, it could not be guaranteed, but 0.004 gr/actual cubic feet (acf), approximately equivalent to 0.005 gr/dscf, could be guaranteed. Further, industry representatives at the meeting commented that the 0.0039 gr/dscf level was too stringent for the industry to meet at all times. Therefore, the industry representatives suggested the limitation be 0.008 gr/dscf.

- After the January 9, 1974, NAPCTAC meeting, a vendor stated that, for a fabric filter controlling a direct shell evacuation (DEC) system with a relatively high inlet concentration of PM, 0.005 gr/dscf was a reasonable level to guarantee.
- In the October 21, 1974 proposal (39 FR 37466), the Agency proposed a PM standard to be no more than 0.0052 gr/dscf of PM from the control device, which relaxed the previous presented value of 0.0039 gr/dscf for the limit for the PM concentration emitted from an EAF control device.

In summary, this history of discussions around the first PM limit for EAF control devices in the NSPS is as follows: the EPA originally put forward an EAF control device standard in the form of lb/hr-ton in 1973. The following year, industry suggested a PM limit of 0.008 gr/dscf and vendors presented a guaranteed fabric filter limit of 0.005 gr/dscf. Subsequently, in 1974, the EPA proposed a standard of 0.0039 gr/dscf, which was based on "available emission data" from one facility, as noted in the 1974 BID. However, after NAPCTAC discussions with industry and vendors, a limit of 0.0052 gr/dscf was promulgated by the EPA in 1975 in the EAF NSPS subpart AA and confirmed again in 1984 in the EAF NSPS subpart AAa.

Regardless of the EPA's discussions during prior rulemakings, as detailed in the proposed rule and in this final action, we now have a strong basis to find a direct relationship

between mass emissions and steel production that justifies our facility-wide PM limit in units of lb/ton. We show in our analyses of 2010 data from 30 facilities discussed in this preamble (see Figure 1), as well as in data from more facilities from 2005, as discussed in another EPA response in this preamble section, that there is a direct relationship. As explained earlier in section IV.A.1 and in other comments in this section, and in the proposal, the EPA analyzed the total facility PM mass emissions versus production at a number of EAF facilities and found that a correlation exists, and that promulgating a PM standard for NSPS subpart AAb in this form would enhance compliance and may reduce emissions. As noted earlier in this EPA response, the new format of the EAF NSPS subpart AAb, in units of lb/ton ensures that every facility is accountable for the total PM contribution from its EAF and AOD to the environment in the nearby community for every unit of steel produced. As an example of similar thoughts on the value of EAF standards in lb/ton, we note a 2017 facility construction permit for prevention of significant deterioration that included a lb/ton PM limit (0.19 lb/ton), as well as a "no visible emissions" limit for the EAF.[13]

Comment: The commenter asserted that the EPA conducted evaluation on a concentration basis and not in the form of the proposed standard (lb/ton). A commenter stated the EPA in its proposal performed cost analyses based upon the air flowrates to the air pollution control device, and rather than establishing a standard of performance for the air pollution control device (baghouse), the EPA proposed the PM emissions standard in terms of lb/ton steel produced on a facility-wide basis. The EPA analyzed the performance of emissions controls from EAF on a concentration basis (milligram per dry standard cubic meters (mg/dscm) – grain per dry standard cubic feet (gr/dscf)) -- and not in the form of the proposed standard. The EPA must be consistent with the basis of its evaluation and establish a standard measuring compliance as a concentration

[13] Finkl & Sons Co. DBA Finkl Steel – Chicago. 1355 East 93rd Street, Chicago, Illinois 60619. State of Illinois Clean Air Act Permit Program (CAAPP) Permit. ID No. 031600GUC. Permit No. 14030029. Permitting Authority, Illinois Environmental Protection Agency Bureau of Air, Permit Section 217 /785-1705. Final issue date July 5, 2018. pp. 21 and 23 of 129.

exiting the control device.

EPA Response: The commenter correctly notes that, rather than establishing a concentration standard of performance for each individual air pollution control device (baghouse), the EPA in 2022 proposed to set the PM emissions standard in terms of lb/ton steel produced on a facility-wide basis from all control devices at the EAF facility. However, the EPA disagrees that we analyzed the performance of emissions controls from EAF on a concentration basis (gr/dscf) -- and not in the form of the proposed standard. The EPA's analysis in the "Emissions Memorandum" discussed earlier in this section clearly demonstrates that the EPA evaluated costs and emission reductions on a facility-wide basis in lb/ton format. [See figures and tables in the "Emissions Memorandum" discussed earlier in this section: Figure 3 (EAF baghouse data in mass PM per mass of steel produced (lb/ton)); Figure 4 (EAF facility total baghouse mass PM per mass of steel produced (lb/ton)); Table 3 (EAF Baghouse Information and Average PM Emissions (lb/ton)); and Table 5 (Facility Total EAF Baghouse Average PM Emissions (lb/ton))]. Further, the EPA outlined in multiple locations in the proposal that the performance of emissions controls from EAF were done on a facility-wide basis.

For example, at 87 FR 29716, the EPA described the PM and opacity test data that was used in the BSER analysis. At 87 FR 29715-29716, the EPA explained how the opacity limit was developed considering facility-wide emissions. To determine the PM limit for control device PM emissions under the BSER, the EPA only used data from EAF facilities with 0 percent melt shop opacity. This was because facilities that control their melt shop opacity to 0 percent are collecting more PM (specifically from the melt shop) than facilities that have a nonzero melt shop opacity and, as a result, are sending more PM to their control devices. Consequently, EAF facilities with 0 percent melt shop opacity are expected to have a slightly higher control device PM emission rate on average compared to EAF facilities with greater than 0 percent melt shop opacity, as evidenced by the EAF dataset of 33 EAF facilities. As a corollary, at EAF facilities with 6 percent melt shop opacity, some of the PM generated by the EAF is not captured, avoids

the control device, and can exit through the melt shop roof, thus raising the melt shop opacity to above 0 percent. In turn, facilities with 6 percent melt shop opacity collect less PM and, therefore, less PM is sent to control device, which results in (slightly) lower PM emissions in the control device exhaust.

Overall, because of the large amount of PM emission differential between 6 percent and 0 percent melt shop opacity, much less PM is emitted to the environment with 0 percent melt shop opacity than with 6 percent opacity, despite the higher level of control device emissions with 0 percent melt shop opacity. This effect is described quantitatively in the proposal preamble (87 FR 29720). Of the 15 EAF facilities in the EPA dataset with 0 percent melt shop opacity, control device PM emissions data and steel production values needed to develop an emission standard in mass of PM per mass of steel production were available for 13 of the 15 facilities; these data included 51 individual tests from 23 baghouses and 21 EAF. The 13 EAF facilities and their PM emissions were used to demonstrate that 0 percent melt shop opacity is BSER and to develop a facility-wide total PM control device emission standard in lb/ton under the BSER for new, modified, and reconstructed EAF or AOD.

As explained earlier in section IV.A.1 and other comments in this section, and in the proposal, the EPA analyzed the total facility PM mass emissions versus production at a number of EAF facilities and found that a correlation exists, and that promulgating a PM standard for NSPS subpart AAb in this form would enhance compliance and may reduce emissions. As noted earlier in this EPA response, the new format of the EAF NSPS subpart AAb, in units of pound per ton (lb/ton), ensures that every facility is accountable for the total PM contribution from its EAF to the environment in the nearby community for every unit of steel produced.

Comment: A commenter asserted that a lb/ton steel limit does not consider the different types of EAF mills. A commenter stated the EPA does not acknowledge nor address the fundamental fact that a “facility-wide lb/ton” production, or mass-based standard, ignores the substantial differences among EAF steel mills that directly bear on the PM emissions per ton of

steel produced. The commenter claims it is both unfair and inconsistent with the BSER to hold a small specialty steel EAF facility, with low tonnages and more time-intensive steel refining requirements, to the same production-based standard as a facility that produces 10-times or more steel with much shorter heat times (*i.e.*, 2 facilities with vastly different production rates).

The commenter stated a compliance method based on PM per ton of steel produced does not take into consideration the various subcategories of EAF operations, differences in steel products, and variation in heat times and tonnages produced, which vary considerably depending on the product grade of steel and the mix of such products at various mills. Some carbon EAF mills produce high tonnages in relatively short heat times, while specialty EAF steel facilities produce much smaller tonnages over heat times that can be 2 to 3 times as long.

The commenter continued, as the EPA noted in developing the NSPS subpart AAa standards in 1984, the production of steel in an EAF is a batch process where 'heats' or cycles range from 1 to 5 hours, depending upon the size and quality of the charge, the power input to the furnace, and the desired quality of the steel produced. The commenter added, the EPA's statement in the proposal that "[t]he production of steel in an EAF is a batch process" (87 FR 29713), is not accurate and fails to acknowledge "Endless Charging Systems" and Consteel® continuous feed systems (*i.e.*, continuous charging systems). The commenter added that, to determine appropriate standards of performance, the EPA should conduct a comprehensive evaluation of the different types of EAF mills (such as bar, sheet, and plate) and consider establishing different limitations and requirements for each subcategory. Another commenter encourages the EPA to evaluate current designs and applications of baghouses for the control of PM.

EPA Response: We disagree with the commenter on the relevance of lb/ton standard to the variation in EAF operations. The lb/ton limit being promulgated (0.16 lb/ton) reflects the highest emitting facility in the EPA dataset, which is a stainless steel facility. Therefore, we expect both EAF carbon and stainless steel facilities, continuous or batch, that modify or

reconstruct and then are subject to the NSPS subpart AAb will be able to meet the new PM limit. Moreover, future new, reconstructed, and modified facilities will be in an even better position to meet this limit because they can plan their construction, reconstruction, or modification accordingly. For these reasons, and because the facility which represents the PM limit, at 0.16 lb/ton total facility PM control device emissions, is the highest emitting facility in the dataset (and 1 of only a total of 4 steel facilities in the industry that produce only stainless steel), we do not think a subcategory is warranted.

The commenter is correct that the lb/ton limit does not take into account the different types of EAF mills, but the various types of steel and production have all been meeting the single concentration standard in subpart AAa (and AA) without issue in the many years since this limit was first set in 1975. Therefore, meeting a lb/ton standard based on the emissions of one third of the facilities in the industry that also are meeting the current standard will not be a problem. Whether a mill is batch or continuous, slow or fast, will not affect the total amount of PM emitted per amount of steel produced for each facility. When a batch process stops producing steel (*i.e.*, stops tapping steel), it typically also will stop emitting PM from the EAF. If PM emissions continue after the EAF has stopped processing scrap, or steel has stopped being tapped in a batch process, any "trailing" PM emitted is still a result of the steel that has just been produced. Therefore, this "trailing" PM should be included in the total PM catch for the test run.

Similarly, a continuous EAF process will emit PM as it continues to produce steel. And a relatively large amount of steel produced in a short time will also produce a relatively large amount of PM in a short period. The effect of dividing the PM emitted by the tons of steel produced normalizes the different processes to a common lb/ton term.

Comment: Air-to-cloth (A/C**)** ratios from integrated iron and steel (II&S) industry were used instead of EAF data. The commenter asserted that the EPA offers no explanation why using II&S baghouse data was relevant to EAF baghouse controls in the first place or why the EPA presumed that relative rank placement of 5 facilities along a ranking of II&S baghouse A/C

ratios allowed the EPA to presume those facilities' PM emissions were based on control through a baghouse with the same A/C ratios. Moreover, the commenter asserts that the use of II&S data is inexplicable because the EPA has in its possession the A/C ratios for many plants with EAF. This information was available to the EPA in the rulemaking docket for the 40 CFR part 63, subpart YYYYY NESHAP for EAF, and the EPA even summarized the A/C ratios for the EAF baghouses that were operated during these performance tests.

The commenter continued to assert that the EPA's derived average, median, minimum, and maximum A/C ratios are all incorrect. The derived A/C ratios misstate the actual A/C ratios reported by the 3 model facilities for which the EPA had actual performance test data (Model Plants A, B, and E). For instance, Model Plant E is the North American Stainless facility in Ghent, Kentucky (NAS-KY), which operates 4 baghouses. For those 4 baghouses, the facility reported to the EPA A/C ratios of 4.1, 4.5, 4.5, and 5.0 ft/min -none of which are close to the EPA's erroneously derived A/C ratio of 7.2 ft/min.

EPA Response: The EPA disagrees with the commenter's assertion that the use of II&S data in lieu of the A/C ratios for plants with EAF is inappropriate. The EPA stated in the EAF NSPS proposal (87 FR 29718) that the reason for using more recent 2011 II&S baghouse data was because no A/C ratio data were available in the EAF PM test reports from 2010. Therefore, values for A/C ratios from CAA section 114 responses submitted in 2011 by the II&S industry for the risk and technology review for 40 CFR part 63, subpart FFFFF (85 FR 42074) were used in the EAF BSER PM cost analysis. The baghouses used for emissions from furnaces in the II&S industry are expected to be similar in operation as the baghouses used at EAF/AOD for the purposes of this analysis.

The baghouse A/C ratios from in the NSPS proposal based on II&S data submitted in 2011 for a CAA section 114 request were similar to those submitted in 2005 for another CAA section 114 request for the EAF NESHAP (40 CFR part 63, subpart YYYYY), [14] as shown in

[14] Docket ID No. EPA-HQ-OAR-2004-0083.

Table 1. A quantitative comparison of the A/C ratios from the 2005 EAF NESHAP data to the II&S 2011 data is also shown in Table 1.

Table 1. Comparing A/C Ratios For 2011 II&S Data v. 2005 EAF NESHAP

Model Plant	A/C Ratio (ft/min)		Comparing 2011 II&S A/C Data to 2005 NESHAP Data	
	2011 II&S	2005 EAF NESHAP		
A	1.3	1.4	-7 percent	II&S lower
B	2.9	2.2	32 percent	II&S higher
C	4.0	3.0	33 percent	II&S higher
D	4.9	4.5	9 percent	II&S higher
E	7.2	6	20 percent	II&S higher
Average			17 percent	II&S higher

As the commenter points out, the 2005 EAF data does not include all of the facilities from the 2010 dataset. In addition, the 2005 data did not have A/C data for all the facilities' baghouses, where there were multiple baghouses, and for some facilities the number of baghouses for each facility changed from 2005 to 2010.

In response to this comment, for the final rule, we re-examined the BSER analysis of total facility PM lb/ton steel from capture systems and fabric filters using A/C ratios from the EAF 2005 CAA section 114 request that ranged from 1.4 to 6.0 ft/min. For Model Plant A, corresponding to Timken-Faircrest-OH, the A/C ratio in the 2005 CAA section 114 request (3.4 A/C) was higher than the 2011 II&S data point (at 1.3 A/C), but the A/C ratio derived using a regression analysis that produced the line of best fit from the 2005 CAA section 114 request data (at 1.4 A/C), is very similar to the II&S datapoint (1.3 A/C).

For Model Plant B, based on Timken-Harrison-OH, the A/C ratio from the 2005 CAA section 114 request (at 2.7 A/C) is very similar to the II&S data point (2.9 A/C) and also from a regression analysis that produced the line of best fit from 2005 (2.7 A/C).

For Model Plant E, based on NAS-KY, an average A/C ratio of 4.5 ft/min A/C was derived from the data reported to the EPA in 2010 (and also provided by the commenter). However, the A/C ratio of 6.0 assigned to the same emissions as NAS-KY (0.16 lb/ton) derived from the curve of 2005 CAA section 114 data is not much different than what was used in the

EAF proposal (at 7.2 A/C) based on II&S data. These values are shown in Table 2.

Table 2. Comparing A/C Ratio Data Between 2005 and 2010 EAF Data and 2011 II&S Data

Facility	Comparing 2005 to 2010 Data	Model Plant	A/C Ratio (ft/min)			
			2011 II&S Data	2005 EPA Data	2010 EPA Data	Curve Using 2005 Data
Timken-Faircrest-OH	Different baghouses	A	1.3	3.4	NA	1.4
Timken-Harrison-OH	Same baghouses	B	2.9	2.7	NA	2.2
NAS-Ghent-KY	Same baghouses	E	7.2	NA	4.5	6.0

In addition, the EPA used the data from the 2005 CAA section 114 request for the EAF NESHAP to add to the 2010 CAA section 114 request data used for the lb/ton BSER PM limit analyses for capture systems and fabric filters reported in the proposal in order to re-evaluate the proposed lb/ton BSER standard for capture system and fabric filter PM emissions. The 2005 EAF emission data that was able to be converted to lb/ton values and also had A/C ratio data were used along with 2010 CAA 114 request data used to develop BSER for the proposal. A similar trend in PM lb/ton data was seen in the 2005 data as compared to 2010 data, as shown in Figure 2 below, with a lower maximum PM lb/ton value in the 2005 data.

The 2010 CAA section 114 request data used to develop the PM lb/ton standard for the proposal were matched to the A/C ratios in the 2005 CAA section 114 data for the NAS-Ghent-KY facility, to provide a total of 18 facilities in the dataset for PM lb/ton standard for capture systems and fabric filters for the final rule. See the memorandum titled *Cost Analyses to*

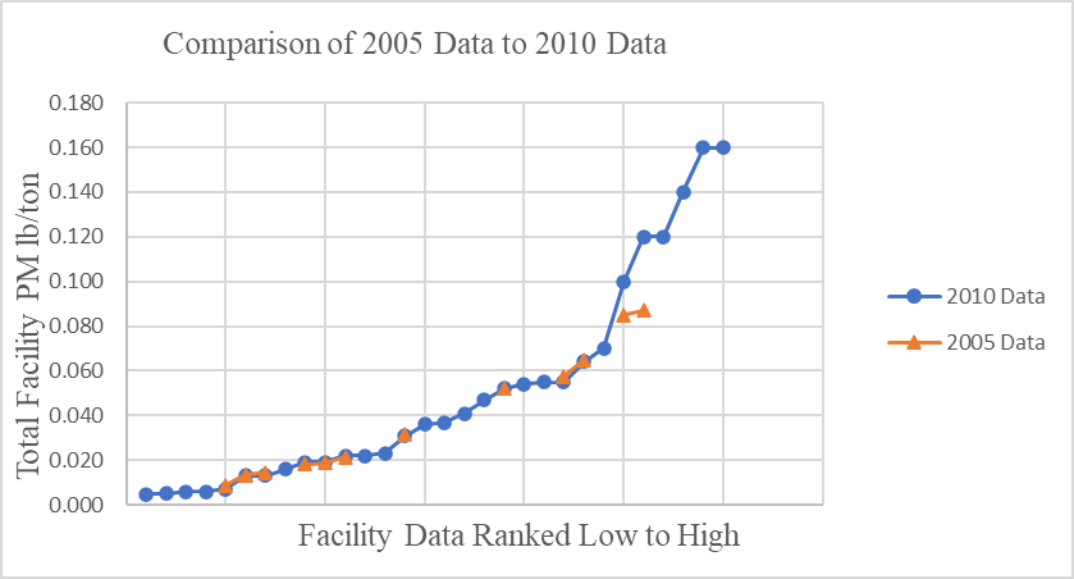

Figure 2. Comparison of 2005 and 2010 CAA Section 114 Request For Data for Total Facility Baghouse PM Emissions Per Mass of Steel Produced (lb/ton)

Determine BSER for PM Emissions and Opacity from EAF Facilities,[15] as updated for the final rule, hereafter referred to as the "Cost Memorandum," located in the docket for this rule. The results of the analyses of a PM limit that reflects BSER were similar between proposal and final producing the same PM 0.16 lb/ton limit for the BSER capture system and fabric filter. See Table 3 for the combined 2005 and 2011 lb/ton data set using EAF A/C ratios and both 2005 and 2011 EAF submitted emissions data. Table 4 shows the results from the model plant analyses comparing the results for the 2 approaches. Note Model Plants E and F are both the highest emitting model plant in the proposal (using 2011 II&S A/C ratios) and final rule (Using 2005 EAF A/C ratios) analyses, respectively. Because Model Plants E and F are the highest emitting model plants, the EPA does not have a baseline with which to compare the costs and emission reductions in order to develop average cost effectiveness values. However, the EPA's determination of the BSER in this review is consistent with its determination of the BSER in the prior 40 CFR 60, subpart AAa rulemaking. And as noted elsewhere in this preamble, a third of

[15] *Cost Analyses to Determine BSER for PM Emissions and Opacity from EAF Facilities*. D.L. Jones, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, and G.E. Raymond, RTI International, Research Triangle Park, North Carolina. May 1, 2023; Docket ID No. EPA-OAR-2002-0049-0061.

the industry is already achieving the PM 0.16 lb/ton limit through application of that BSER, which demonstrates that the costs of meeting that limit are reasonable, and not exorbitant or excessive. See *Lignite Energy Council* v. *EPA,* 198 F.3d 930, 933 (D.C. Cir. 1999) ("EPA's choice will be sustained unless the environmental or economic costs of using the technology are exorbitant."); *Sierra Club* v. *Costle,* 657 F.2d 298, 343 (D.C. Cir. 1981) (the court is not inclined to "quarrel" with the EPA's judgment that "forecasted cost was not excessive and did not make the cost of compliance with the standard unreasonable"); *Portland Cement Association* v. *Train,* 513 F.2d 506, 508 (D.C. Cir. 1975) (the inquiry is whether the costs of the standard are "greater than the industry could bear and survive"). Moreover, the capital costs and annual costs associated with compliance with the PM 0.16 lb/ton limit are similar to, and in some cases lower than, the costs that the EPA found to be reasonable for implementing the BSER to meet the final opacity standard, discussed in section IV.B. See the "Cost Memorandum," discussed earlier in this section, for details of both the canopy costs for the opacity limit and fabric filter costs for the PM limit. This further demonstrates that the costs of meeting the PM 0.16 lb/ton limit are also reasonable for this industry, for all facility sizes. However, as shown in Table 4, the EPA does not find the incremental costs of achieving the more stringent standards evaluated through application of the BSER to be cost effective for any facility size. Accordingly, the EPA concludes that PM 0.16 lb/ton limit reflects the degree of emission limitation achievable through application of the BSER.

Table 3. Combined 2005 and 2010 lb/ton EAF Datasets with 2005 EAF A/C Ratios

Count	2010 Zero Opacity Facilities	2010 lb/ton	2005 Facility A/C (weighted average)
1	Timken-Faircrest-OH	1.3E-02	3.4
2	Nucor-Crawfordsville-IN	1.6E-02	3.2
3	Gerdau-Charlotte-NC	2.3E-02	2.2
4	Timken-Harrison-OH	3.6E-02	2.6
5	Nucor-Huger-SC	5.2E-02	2.6
6	CMC-Birmingham-AL	5.5E-02	3.7
7	CMC-Cayce-SC	6.4E-02	3.3
8	NAS-Ghent-KY	1.6E-01	4.5 (2010)

Count	2005 Facilities with P/S Baghouses	2005 lb/ton	2005 Facility A/C (weighted average)
1	Nucor-Norfolk-NE	8.7E-03	2.8
2	Nucor-Cofield-NC	1.3E-02	3.0
3	Nucor-Blytheville-AR	1.4E-02	3.0
4	Nucor Bar Mill-Plymouth-UT	1.8E-02	2.1
5	North Star Steel-St. Paul-MN	1.9E-02	2.0
6	Nucor Berkeley-Huger-SC	2.2E-02	2.6
7	IPSCO Steel-Axis-AL	3.2E-02	2.6
8	SMI Steel-Cayce-SC	5.8E-02	3.3
9	CMC/Struct Metals/SMI-Sequin-TX	8.5E-02	6.0
10	IPSCO Steel-Muscatine-IA	8.7E-02	5.1

Table 4. Comparison of BSER Model Plants for Small, Medium, and Large EAF Facilities Using Two Datasets: 2005 EAF A/C Ratios and 2010 II&S A/C Ratios, Both With 2010 EAF lb/ton Data

Model Plant[a]	Total Controlled EAF PM Emissions	EAF Facility Average Production	A/C Ratio (ft/min)		Cost for New Baghouse		Incremental Cost Effectiveness Compared to Next Lower-emitting Model Plant[b]
					Capital	Annual Costs	
	lb/ton	tpy	Value	Basis	$	$/yr	delta$/ton PM
SMALL FACILITY							
E	0.16	50,000	7.2	2011 II&S	$796,912	$341,981	$13,340
F	0.16	50,000	8.0	2005 EAF	$767,439	$338,610	$7,196
MEDIUM FACILITY							
E	0.16	775,000	7.2	2011 II&S	$4,778,920	$2,045,443	$12,197
F	0.16	775,000	8.0	2005 EAF	$4,361,224	$1,997,701	$6,575
LARGE FACILITY							
E	0.16	3,450,000	7.2	2011 II&S	$21,929,003	$8,598,613	$13,708
F	0.16	3,450,000	8.0	2005 EAF	$19,839,154	$8,359,718	$7,390

[a] Model Plants E and F are both the highest emitting model plants in the two datasets, where the A/C data for Model E is from II&S A/C data and for Model F the 2005 CAA section 114 responses are used for A/C data. Cost analysis values for Model E are the same as from proposal, with updates to reflect $2022 for the final rule v. $2020 that were used for the proposed rule.

[b] The incremental cost effectiveness from Model Plant E to D in $2022, at $12,200/ton for medium-sized facility, is higher than the same comparison of the same model plants in $2020, at $8,500/ton, because of the increase in the values used in the cost estimate as a result of inflation and increase in interest rate from 3.5 percent to 7.5 percent from 2020 to 2022.

Comment: The commenter asserted that the change from a concentration to lb/ton limit

complicates compliance and does not result in better control or greater assurance of compliance. The commenter stated the EPA's assertion that switching to a lb/ton standard will "result in better control and greater assurance of compliance" is incorrect. Under the current standards in NSPS subparts AA and AAa, compliance is readily demonstrated through EPA Method 5 monitoring of the stack on the primary control device/baghouse. This is a direct measurement of the filtering ability of the baghouse and evidence of compliance with concentration limits without all of the unnecessary variables the new rule introduces which are not directly related to emissions. Under the proposal, facilities subject to NSPS subpart AAb would be required to track tonnages produced during stack tests and match those to emissions data.

EPA Response: The commenter is correct that with a lb/ton standard, facilities subject to NSPS subpart AAb will be required to track tonnages produced during stack tests and match those to emissions data. However, this is already required in the current EAF NSPS (compare 40 CFR 60.274(i)(1), 60.274a(h)(1) with proposed and final 40 CFR 60.274b(h)(1)). The 31 facilities in the 2010 EPA/EAF data set were able to report steel produced during the testing. Therefore, we expect the entire industry to be able to do so.

The baghouse PM emission data in gr/dscf do not address the total emissions generated by a facility. The gr/dscf data can be influenced by increasing dilution air to the baghouse and is not directly related to steel production as PM emissions logically should be. Using concentration in gr/dscf to assess the filtering ability of baghouses can still be done at any time but it doesn't necessarily reflect the contribution of PM by the facility's steel production to the environment. In order to assess a facility's impact to the local environment, the general public would need to know the exhaust rates of every baghouse at a facility to determine the facility's PM emissions, whereas from lb/ton facility-wide data, the maximum amount of PM being emitted can be easily ascertained with only one steel production value and one facility-wide PM limit.

Comment: The commenter asserted that the lb/ton limit does not consider vendor guarantees on control systems. The commenter stated it is critical to obtain vendor guarantees

from suppliers when constructing new facilities or EAF and associated control systems, to ensure that the purchased equipment can comply with applicable standards. Vendors can guarantee that the filters/control device have a specific removal rate (*i.e.*, vendors can only guarantee the difference between the clean and dirty side of the bag). Obtaining such guarantees is what gives facilities comfort that the equipment they purchase will perform such that compliance is assured. The commenter stated that such comfort is not possible with the Agency's proposed "facility-wide" PM limit, because vendors do not offer lb/ton guarantees for specific equipment and certainly not on a facility-wide basis. This is understandable given a supplier's ability to design equipment to a given concentration or control specification, but lack of ability to control the many factors that influence lb/ton efficiency, especially where a vendor may not be the sole facility-wide designer. Vendors have no control over the tonnage of steel produced or how the steel tonnage estimate comports with the duration of the PM measurement. The commenter concluded the EPA should take this into account by setting a concentration-based emission standard and noted that the EPA has previously acknowledged the importance of being able to obtain vendor guarantees when setting the NSPS subpart AAa limits in 1984 (49 FR 43840). The commenter stated that it would thus be arbitrary and impermissible for the EPA to ignore that consideration here.

EPA Response: Vendors can continue to use gr/dscf to assess the filtering ability of a baghouse, especially since the NESHAP for EAF (40 CFR part 63, subpart YYYYY) still requires gr/dscf determinations. In addition, the calculation of PM concentration in gr PM/dscf is an intermediate step in the calculation of lb PM/ton steel emission rate: concentration (gr/dscf) * flow rate (dscf) = emission rate, as PM in lb/hr; then divide by tons per hour steel for lb PM/ton steel format. Moreover, evaluating the impact of a new facility (or reconstructed or modified facility) under the NSPS subpart AAb, in terms of PM emissions on the surrounding communities, is more easily determined from a lb/ton limit and overall facility steel production. With a lb/ton limit, not only must a new facility determine that their baghouses are working

properly, but they must also determine whether the facility is being efficient in its generation of PM at the desired production level compared to the best facilities operating at the same production level.

Comment: A commenter noted that EAF National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR part 63 subpart YYYYY requires concentration limits. The commenter stated the maximum achievable control technology (MACT) standard in the NESHAP for EAF (40 CFR part 63, subpart YYYYY) independently limits PM emissions from each EAF to 0.0052 gr/dscf. The proposed NSPS would thus have the result of subjecting facilities to both a lb/ton limit (via NSPS) and a concentration limit (via NESHAP). Since facilities will still have to track gr/dscf anyway to comply with NESHAP limits, it would be inefficient and unreasonable to also require a lb/ton limit.

EPA Response: The applicability between the NSPS and NESHAP are different. All existing EAF facilities will continue to meet the gr/dscf PM limit in the NESHAP. Only new, reconstructed, or modified EAF or AOD units and their control devices need to meet both the lb/ton PM total facility limit that is being finalized in NSPS subpart AAb along with the NESHAP's individual baghouse limit. As discussed in previous responses to comments in this section, the data needed to show compliance with both standards are obtained in the same test. The combination of the two standards results in the public and regulators being able to more accurately evaluate EAF operation and the potential impact of new facilities on surrounding communities because the rules together limit total facility PM emissions impacts while checking individual control device operation. Facilities subject to the NSPS subpart AAb, and their vendors can continue use the gr/dscf limit to troubleshoot baghouse operation just as facilities have done in the past.

For facilities that modify or reconstruct after May 16, 2022, only the EAF(s) or AOD(s) and the air pollution control equipment that were modified or reconstructed after May 16, 2022, must comply with NSPS subpart AAb. This provision has been added to the rule at in 40 CFR

60.271b under the definition of "*Electric arc furnace facility."* If there are capture systems and control devices that capture PM emissions from sources subject to NSPS subparts AA or AAa at the same site where there are also sources subject to NSPS subpart AAb, the procedures described in the rule at 40 CFR 60.275b(b) include any one of the following options (see also 40 CFR 60.276bI) to determine compliance: use the combined emissions; use a method that is acceptable to the Administrator or delegated authority and that compensates for the emissions from the facilities not subject to the provisions of this subpart; or any combination of the above methods.

3. What is the rationale for the final BSER determination and what is the final standard of performance?

The EPA is finalizing the proposed determination that the BSER for EAF and AOD is capture and control of PM with a fabric filer. The EPA is further finalizing the proposed determination that limit based on the BSER at 0.16 lb/ton total facility PM is achievable for any new, modified, or reconstructed facility because it is based on the EPA's data from approximately one third of the industry. The format of the limit based on BSER (total facility lb PM/ton steel produced from all affected capture systems and fabric filters) provides complete information on the performance of the facility and their EAF rather than that of just the individual baghouse(s) and individual EAF via a concentration based standard, and enables the public and regulators to know the total pollutant impact of the facility's EAF operation on the surrounding community. The current concentration-based limit in NSPS subparts AA and AAa is influenced by the amount of dilution air in the exhaust going through the baghouse, which can be adjusted to some extent by the facility without significant detriment to baghouse operation. Evaluating the impact of PM emissions from a new EAF facility (or reconstructed or modified facility) on the surrounding communities is more easily determined from a facility-wide lb/ton limit. With a lb/ton limit, not only must a new facility determine that their baghouses are working properly, but they must also determine whether the facility is being efficient in its

generation of PM at the desired production level compared to the best facilities operating at the same production level. In addition, the total facility lb/ton PM limit provides an overall assessment of emissions from the facility in a format that scales emissions to production, which is based on fundamental engineering principles. The current concentration-based limits in NSPS subparts AA and AAa do not limit the air flow or the number of baghouses that could be used to comply with the standard.

Based on data from 31 EAF facilities (more than one third of the industry), all 31 facilities' baghouse emissions are 40 percent or lower than the current concentration-based limit in 40 CFR part 60, subparts AA, AAa. Therefore, the 0.16 lb/ton production-based limit based on these same data is a significant improvement in emissions control compared to the current standard. Moreover, because the lb/ton limit is the highest level in the EPA data set that includes one third of the industry, the standard that the EPA has determined to reflect the application of the BSER technology is achievable.

Lastly, we used both 2005 EAF PM data with EAF 2005 A/C data, and 2010 EAF PM data with 2005 EAF A/C data for the cost analysis to determine BSER for the EAF lb/ton PM standard, and reached the same conclusion as we did for proposal with 2010 EAF PM data and 2010 II&S A/C data. Therefore, in this final rule, the use of a capture system and fabric filter was determined as the BSER. The PM limit based on BSER of 0.16 lb PM/ton steel facility-wide was derived from the data available to the EPA, which comprised approximately one third of the industry, and also where the EPA considered costs, nonair quality health and environmental impacts, and energy requirements (described below in sections V.A and V.B).

4. Are there any relevant energy impacts or nonair quality health and environmental impacts of the selection of the final BSER and, if so, how were the final emission limitations based on BSER affected?

The EPA did not identify any relevant energy impacts or nonair quality health and environmental impacts of the proposed or final standards for PM emissions from EAF and AOD

control devices (baghouses). See sections V.A and V.B. of this preamble for details. No comments were received on these issues.

B. NSPS Requirements for Opacity from Melt Shops for Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After May 16, 2022

1. What did we propose as the BSER determination and standard of performance.

We proposed that VE from EAF and AOD that exit from the melt shop would be limited to an opacity of 0 percent during all phases of operation, based on the determination of BSER as the addition of a partial roof canopy to capture and control melt shop fugitive emissions.

2. What significant comments did we receive and what are our responses?

Comment: One commenter asserted that the proposed 0 percent melt shop opacity limit disregards workers' safety by requiring the closure of roof and buildings. Specifically, the commenter stated the proposed 0 percent melt shop opacity limit disregarded workers' safety related to heat stress and material handling activities and that, therefore, the EPA should reconsider the 0 percent opacity limit. The commenter stated the proposal did not include an analysis of impacts for closure of building openings. A review of the impacts on worker heat stress would be necessary and that the EPA had provided no justification for requiring melt shops to close all openings.

The commenter noted the current proposed rule did not address heat stress concerns, which was in conflict with OSHA's current Heat Stress Initiative and National Enforcement Program that identified "iron and steel mills" specifically as a high hazard industry for heat stress. The commenter stated that safe melt shop operation requires air flow to minimize potential heat stress on workers and equipment. The commenter claimed that negative pressure alone was not sufficient to maintain proper airflow through the melt shop and that cross drafts were necessary and doors and other access points needed to be open. The commenter also had significant concerns about employee health impacts from the proposed totally enclosed melt shop, particularly for its Mobile, Alabama facility, which is located in an extreme climate area,

as the proposed changes could cause greater heat stress on employees and would necessitate design and structural changes that the EPA failed to consider in its proposal. The commenter stated that 100 percent capture and 0 percent opacity may not be safe. The commenter noted when evaluating 2 different control systems, the EPA may not simply choose the most cost-effective air pollution control system if it potentially has adverse impacts on the health and safety of workers within the melt shop. The commenter stated that facilities need to allow air changes to protect worker health and safety.

The commenter referenced the 1984 amendments, which dismissed the option for a closed roof configuration to achieve 0 percent opacity due to the impacts of heat stress on worker safety and equipment functioning. A commenter said that statements made by the EPA in the 1984 40 CFR part 60, subpart AAa rulemaking (49 FR 43841) that "the visible emission limits were selected-based on the performance of the capture and control technologies that served as the basis for Regulatory Alternative B (partially open roof monitor)" and that "Regulatory Alternative C (closed roof) was not considered suitable as the basis for national standards of performance because it is based on a closed roof configuration which may aggravate worker and equipment heat stress problems."

EPA Response: The proposed rule 40 CFR part 60, subpart AAb did not require a closed roof nor a totally enclosed melt shop. In addition, the 0 percent shop opacity limit does not restrict air flow from exiting or entering the shop. Rather, the 0 percent opacity limit merely necessitates that no visible particles be emitted from the shop (as reflected by either no VE observations via EPA Method 22 or opacity of 0 percent using EPA Method 9 or the DCOT method). Canopy hoods have the benefit of being able to collect a large volume of emissions, especially those during charging and tapping and route the PM to control devices. Therefore, the basis for the addition of a partial roof canopy with a canopy hood used in the proposed and final cost estimates is to ensure facilities clean the air of particles before allowing the air to exit the shop opening(s). We believe a capture device such as a canopy hood, as opposed to a closed

roof, can be used to meet the opacity limit based on BSER and does not endanger worker safety.

Comment: The commenter asserted that the EPA used a limited data set that was not indicative of continuous long-term performance and did not support a finding that 0 percent opacity was adequately demonstrated. The commenter stated the EPA's dataset for EAF steel mills is selective and not representative of the full scope of operations at these facilities. The commenter stated that the EPA purported to have based the proposed 40 CFR part 60, subpart AAb shop opacity limit on individual performance testing reports from a total of 13 of 31 EAF steel mills, which was less than half. The commenter noted that most facilities (16 out of 31) were unable to maintain 0 percent shop opacity throughout the duration of the performance tests. Thus, as the majority of facilities in the EPA's database did not maintain 0 percent opacity, the short duration of performance testing plainly demonstrated that 0 percent shop opacity was not adequately demonstrated.

Another commenter stated the EPA's proposal of 0 percent opacity from the melt shop was based on limited information from opacity tests conducted at 31 facilities, of which less than half achieved the 0 percent melt shop opacity requirement. The commenter stated that the short-term observations conducted during a stack test were taken for a few hours under a specific set of conditions and were not representative of long-term compliance capability and, as such, could not account for routine operating variability and the full range of operating conditions that may affect opacity. The commenter stated that the subset of data the EPA relied upon did not include longer-term operating performance of the identified mills; yet NSPS, as defined by BSER, must account for what was achievable and adequately demonstrated by a wide variety of facilities operating under a wide variety of conditions, not simply show that the standard was achieved at a model plant for a short period of time. The commenter also noted that the data collected by the EPA generally showed that the more years of opacity data reviewed for a given facility, the higher the maximum melt shop opacity.

EPA Response: Thirteen facilities out of the 31 EAF facilities in the EPA data set had

0.00 percent shop opacity during the tests which were reported to the EPA**.** Two additional facilities in the EPA data set achieved 0.00 percent shop opacity as shown in the submitted test reports and another 4 facilities achieved 0.0 percent as shown in the submitted test reports, for a total of 19 facilities appearing to already be complying with a 0 percent shop standard (1 significant figure) based on tests in the submitted reports, and which were performed using the same test method that would be required to show compliance with the NSPS. Out of the total 31 facilities in the EPA EAF data, only 1 facility had shop opacity greater than 1 percent as an average of all runs in the test, with the overall average among the 31 facilities in the EPA data set at 0.14 percent opacity. See the list of 31 EAF facilities and the opacity test results from reports submitted to the EPA in the 2010 EPA/EAF data set, as shown in Table 5. None of the opacity data submitted to the EPA in 2010 should be construed as being from a "model plant." The opacity data was taken from facilities responding to the CAA section 114 information request with the primary purposes to obtain mercury emissions data and were real facilities, comprising a third of the industry. Data for PM and opacity were collected as part of the CAA section 114 information request only for purposes of showing that the reported mercury data were taken during the time the facility was complying with both the NESHAP (40 CFR part 63, subpart YYYYY) and NSPS (40 CFR part 60, subparts AA and AAa).

Table 5. Range of Melt Shop Opacity in 31 EAF Test Reports (2005-2011) from the 2010 CAA Section 114 Request (2010 EPA/EAF Data Set)

Count	Facility ID	Melt Shop Opacity (percent)
1	AKS-Butler-PA	0.000
2	AKS-Mansfield-OH	0.000
3	CMC-Birmingham-AL	0.000
4	CMC-Cayce-SC	0.000
5	CMC-Mesa-AZ	0.000
6	Ger-Charlotte-NC	0.000
7	Ger-Jackson-MI	0.000

8	NAS-Ghent-KY	0.000
9	Nuc-Crawfordsville-IN	0.000
10	Nuc-Huger-SC	0.000
11	Nuc-Jewett-TX	0.000
12	Nuc-Marion-OH	0.000
13	SSAB-Axis-AL	0.000
14	Tim-Faircrest-OH	0.000
15	Tim-Harrison-OH	0.000
16	Nuc-Darlington-SC	0.001
17	Ger-Knoxville-TN	0.01
18	Ger-StPaul-MN	0.02
19	Nuc-Plymouth-UT	0.05
20	CMC-Seguin-TX	0.10
21	Ger-Wilton-IA	0.10
22	Ger-Jacksonville-FL	0.10
23	Ger-Jackson-TN	0.20
24	Alle-Brackenridge-PA	0.20
25	Nuc-Cofield-NC	0.20
26	Alle-Latrobe-PA	0.30
27	Nuc-Blytheville-AR	0.30
28	Nuc-Norfolk-NE	0.30
29	Ger-Beaumont-TX	0.50
30	Ger-Cartersville-GA	0.80
31	Ster-Sterling-IL	1.2
	Overall average	0.14

It would be exorbitantly expensive to the industry (as well as the EPA) for the EPA to request and analyze round-the-clock opacity testing throughout the course of years at a number of facilities in order to obtain data during a "wide variety of conditions and wide variety of facilities." None of the opacity requirements in previously promulgated rules (40 CFR part 60, subparts AA and AAa) have differentiated conditions or facility types for the opacity requirements in those rules. The commenter does not provide any information showing that the need for these data is justified, except for alluding to the fact that facilities improved their control of opacity in more recent years.

The goal of determining BSER is that it is the "best" system of emission reduction (considering costs and other factors), not the system used by the majority of the industry nor the top facilities when ranked or any other ranking method. However, the EPA acknowledges that

the data obtained through CAA section 114 requests consisted of data collected during melting and refining, which is the time period required to test opacity in the current EAF NSPS rules in 40 CFR part 60, subparts AA, AAa. Therefore, in light of comments provided by the industry that reducing opacity during charging and tapping is difficult to achieve because of the physical structure of equipment and because of the much higher PM emissions during charging and tapping than during melting and refining, in the final rule for 40 FCR part 60, subpart AAb we are maintaining the current rule limit in 40 CFR part 60, subparts AA, AAa of 6 percent opacity to apply during charging and tapping, and retaining the proposed 0 percent melt shop opacity for melting and refining. We estimate that the period of charging and tapping is approximately 15 percent of the total EAF operating time period.

Comment: The commenter asserted that the EPA's limited data set is not representative of performance during "charging and tapping"; 0 percent opacity should not apply to charging and tapping. The commenter stated the EPA's opacity data set did not adequately demonstrate that a 0 percent opacity limit could be consistently achievable across the full spectrum of expected operating conditions. The commenter said the vast majority of the opacity measurements in the data set were based on measurements taken during the melting and refining stage of production (as required under 40 CFR part 60, subpart AAa), and thus did not demonstrate that 0 percent opacity had been consistently achieved during charging or tapping, which was the established period with the greatest potential for uncaptured emissions to escape the melt shop. The commenter noted that most EAF steel mills were designed such that the primary emission controls (DEC) could not be engaged while the furnace roof was off during charging and tapping.

A commenter referenced previous rulemaking to corroborate their statements that the EPA did not consider its own historical information. One commenter referred to background documents for earlier NSPS rulings stating that in those documents, the EPA concluded that facilities utilizing DEC were likely to have a visible plume during charging and tapping and

could not meet 0 percent opacity on a continuous basis. One commenter referenced the 1983 rulemaking docket stating it included only 7 hours of shop opacity data from some portion of the charging and tapping phase, and that such limited data from 4 decades ago was not representative of, or sufficient to, characterize current melt shop operations. The commenter said these previous findings by the EPA contradict the current proposal that 0 percent opacity was achievable on a continuous basis.

A commenter provided confidential summaries of long-term shop opacity data from the 13 facilities identified by the EPA as achieving the 0 percent standard, and noted that most of the opacity data was collected only during melting and refining, and not during charging and tapping. The commenter stated their summaries demonstrated that 0 percent melt shop opacity was not continuously achieved by the 13 mills cited as exemplars. The commenter noted in a reference that they would readily provide the confidential data to the EPA upon request.

A commenter stated that the current design at their facilities included DEC and a baghouse with a canopy, which under the proposed rule was considered the optimal design, yet it appeared the EPA did not include opacity data from their facilities in the limited data set. The commenter noted they fully complied with current limits in 40 CFR part 60, subparts AA, AAa, including opacity; but their facility data showed that compliance with a 0 percent opacity limit at all times per the proposed standard could not be met continuously due to the production process variability and the raw material inputs. The commenter stated it was possible for the melt shop to experience an opacity greater than 0 percent during charging and tapping when the DEC system was disengaged, and there were other sources of opacity from concurrent operations (*e.g.*, vacuum tank degasser operations, the LMF, and the Caster).

A commenter said the EPA in the proposed rule stated 0 percent opacity could be achieved utilizing a canopy over the furnace with an open roof monitor elsewhere. The commenter operated its facilities under such a configuration and did not meet 0 percent opacity on a continuous basis; thus, the EPA's data set was flawed and not representative of the steel

manufacturing operation.

EPA Response: The EPA reviewed the summary data provided by the commenter, where for three facilities, the opacity summary data shown in Table 6 were provided.

Table 6. SMA Data on Opacity from Three Facilities

SMA Facility No.	No. Readings >0 Percent Opacity	Total No. Opacity Readings	Percent >0 Percent out of All Readings	Year of Data
1	3	349	0.9 percent	2021
	0	296	None	2020
	11	294	3.7 percent	2019
2	21	1,482	1.4 percent	2021-2022
3	61	2,488	2.5 percent	2021-2022

Although the commenter presented these data attempting to contradict 0 percent opacity as BSER, the data actually support the preponderance of opacity data at 0 percent, since the number of readings greater than 0 percent were low, ranging from none (*i.e.*, no readings greater than 0 percent) to a high of 3.7 percent, out of a total number of readings ranging from 300 to 2,500.

The EPA's evaluation of the degree of emission limitation achievable with the BSER is not based on an average of all facility data nor an average of the best facilities. Rather, the BSER is the best system of control that the EPA determines is adequately demonstrated for EAF in the industry, and the EPA's charge under CAA 111(a)(1) and (b)(1)(B) is to establish a standard of performance that reflects the degree of emission limitation achievable by application of that BSER.

The EPA EAF data, taken mostly from the 2010 CAA section 114 request, required "an aggregate total of 180 minutes of opacity observation concurrent with PM and/or PM less than 2.5 micrometers ($PM_{2.5}$) testing of EAF primary control devices." The commenter stated that charging time is less than 1 minute to 3 minutes per charge, and tapping is 4 to 6 minutes, so it is not surprising that most of the time opacity was measured during melting and refining.

However, we agree with the commenter that because the current EAF NSPS rules in 40

CFR part 60, subparts AA and AAa only require opacity measurements during melting and refining, the data obtained by the EPA can be assumed to reflect only operation during melting and refining. Therefore, while we are retaining 0 percent opacity during melting and refining in the final rule as in the proposal, we are reverting back to the opacity limit of 6 percent opacity for charging and tapping as in the current rules in 40 CFR part 60, subparts AA, AAa.

Additionally, opacity testing during charging, tapping, and melting, and refining periods is required in the final rule. Opacity tests during tapping, and melting and refining periods should be able meet the minimum 6 minutes of total opacity testing required under EPA Method 9 in 24 consecutive tests for 15 seconds each. However, we are allowing a modification of EPA Method 9 for testing during charging because of the potentially shorter time period that charging occurs. In the final rule, we are allowing the EPA Method 9 testing during charging to be determined from the average of 12 consecutive observations recorded at 15-second intervals for a total of 3 minutes of opacity testing.

Comment: The commenter asserted that the EPA did not properly evaluate the cost of compliance with 0 percent opacity for a source as a result of modification.

EPA Response: The commenter was not specific as to what type of modification needed to be evaluated for its costs to comply with the proposed opacity standards. A modification that triggers applicability of an NSPS is a modification that increases emissions and meets the requirements in 40 CFR 60.14. Without knowing which type of modification is in question, it is difficult to compare the costs of compliance and address the commenter's concern. A facility may be adding another baghouse to accommodate increased production of the EAF. In this case, the modification (additional baghouse) is outside of the melt shop and, therefore, is not affected by the melt shop standard. If a facility is modifying an EAF to increase production, pursuant to 40 CFR 60.14 (e), an increase in production rate of the existing EAF is not considered a modification if that increase can be accomplished without a capital expenditure on that facility. The partial roof canopy determined to be BSER for the melt shop is a type of capture device that

can be added to any melt shop. However, the final rule does not require that a partial roof canopy be installed to be in compliance with the opacity standard. Affected sources can seek other methods to achieve the melt shop opacity.

Comment: In regard to canopy hood control costs, a commenter stated the EPA did not examine advances in control technologies, process operations, design or efficiency improvements, or other systems of emission reduction, that are "adequately demonstrated." Rather, the EPA looked to a decades-old BID, concluded that "[c]anopy hoods are a common method of controlling fugitive EAF emissions," and assessed costs for: adding a partial roof canopy (segmented canopy hood, closed roof over furnace, open roof monitor elsewhere) to collect PM emissions that might otherwise escape through the shops to achieve complete control of melt shop fugitives.

The commenter stated the EPA did not analyze whether canopy hoods were used by the 19 facilities that recorded 0 percent opacity during performance testing or were absent from the 9 facilities that recorded the highest opacity during performance tests. The commenter claims that this information was available to the EPA in the docket for the 40 CFR part 63, subpart YYYYY NESHAP for EAF – the same docket that supplied the majority of the performance test data the EPA used in this rule. The commenter further asserted that the EPA's own review of the survey responses in the 40 CFR part 60, subpart YYYYY docket in June 2005 shows that the EPA knows that canopy hoods were used to capture fugitive emissions from 32 of the 38 EAF described in the CAA section 114 survey responses, and that the presence or absence of a partial roof canopy did not determine whether the facilities responding to the survey could achieve 0 percent opacity. Therefore, the EPA has no basis to now conclude for purposes of demonstrating achievability and cost effectiveness that the singular act of installing a partial roof canopy will "achieve complete control of melt shop fugitives."

A commenter stated the EPA's conclusion is also contradicted within the Agency's cost analysis. In order to estimate how much PM is emitted from a facility that emits 6 percent

opacity, the EPA used the 1982 BID [*Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels in Steel Industry – Background Information for Proposed Standards. Preliminary Draft.* June 1982, Table 3-7 at 3-37; and the 1983 BID *(Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels in Steel Industry – Background Information for Proposed Standards.* (EPA-450/3-82-020a) July 1983; Table 3-7 at 3-37] to estimate that EAF emit an average of 29 lb/ton of uncontrolled PM emissions. The EPA then relied on the 1982 [and 1983] BID again to estimate that facilities emitting 6 percent opacity captured 90 percent of those emissions using a "segmented canopy hood, closed roof over furnace, open roof monitor elsewhere." This is the exact fugitive emission capture technology that the EPA's Cost Analysis presumes facilities with greater than 0 percent opacity can install to achieve 0 percent opacity. In other words, the EPA's *Cost Analysis* assumes that facilities with a "segmented canopy hood, closed roof over furnace, open roof monitor elsewhere" are emitting 6 percent opacity and if those facilities install a "segmented canopy hood, closed roof over furnace, open roof monitor elsewhere" they will achieve 0 percent opacity. Commenter stated because it is arbitrary and unreasonable to assume that facilities will be able to achieve 0 percent opacity by doing nothing more than install the same systems that facilities already have installed without reaching 0 percent opacity, the EPA has failed to provide a cost estimate rationally related to reduction of opacity from 6 percent to 0 percent.

EPA Response: Canopy hoods have been in use for many years in many industries and are still in use today**.** The costs to install a partial roof canopy to enhance control of EAF melt shop fugitives was taken from relatively recent rulemakings (2011 through 2018[16]) for the Ferroalloys industry, which also uses EAF. The 1984 EAF BID was used only to estimate uncontrolled EAF shop emissions in the proposal because there is no estimate available of uncontrolled emissions due to the fact that most, if not all, EAF facilities, especially those

[16] See *https://www.epa.gov/stationary-sources-air-pollution/ferromanganese-and-silicomanganese-production-national-emission* for information regarding Ferroalloys rules.

subject to the EAF NSPS subparts AA and AAa, have some type of control of shop emissions, *e.g.*, DEC systems; canopy hoods, side draft hoods, and tapping hoods; partial or total enclosures; scavenger duct systems; and building evacuation systems (72 FR 53818). Even if a total uncontrolled melt shop could be found, it is not a typical source test to measure emissions from a large opening such as a roof vent or an industrial door, nor does the EPA generally have the resources to perform such a test.

If some EAF facilities with canopy hoods are not achieving 0 percent opacity, as the commenter alleges, it is likely because both the NESHAP (40 CFR part 63, subpart YYYYY) and NSPS standards (40 CFR part 60, subparts AA, AAa) currently only require 6 percent opacity limits for EAF and AOD, and because the standard is higher, they are only being designed to meet that standard. Regardless of the fact that some EAF and AOD facilities may have been designed this way, they still can be designed or modified to achieve 100 percent capture to ensure 0 percent opacity. The fact that some hoods have not been achieving 100 percent capture at some facilities is not proof that canopy hoods cannot be used to do so for new, modified, or reconstructed sources. The commenter fails to provide a technical basis for why canopy hoods cannot be designed to achieve 0 percent melt shop opacity.

Out of 31 EAF facilities in the EPA EAF dataset with opacity data, 13 facilities achieved 0.000 percent shop opacity. Two additional facilities achieved 0.00 percent shop opacity, and another 4 facilities achieved 0.0 percent, for a total of 19 facilities able to comply with a 0 percent shop standard. Out of the total 31 facilities in the EPA EAF data, only 1 facility had shop opacity greater than 1 percent as an average of all runs in the test, with the average of all 31 facilities at 0.14 percent opacity (a value that would round down to 0 percent under the NSPS). See the "Emissions Memorandum," discussed earlier in this section, for more information about these data.

The addition of a canopy hood or alteration of existing hoods to achieve slightly better capture is within reach by a facility achieving less than 1 percent opacity but greater than 0

percent. The scenario of installation of a canopy hood in the melt shop is used in the cost analysis to represent one method that is lower in cost and can be used to achieve the standard of performance if an existing source that is not currently achieving 0 percent melt shop opacity were to modify or reconstruct and become an affected facility under 40 CFR 60, subpart AAb.

Comment: A commenter stated melt shop partitions of the size necessary to meaningfully contain EAF emissions within the melt shop are not feasible in many mills given other equipment and shop design, including cranes. In particular, sizable partition walls are not feasible at many EAF steel mills because they will interfere with overhead cranes that transport scrap metal to the furnace. Similarly, transfer ladles that are carried by crane to and from the furnace for tapping molten metal would be blocked by partition walls.

The commenter said for existing facilities that may trigger an NSPS modification in the future, achieving 0 percent shop opacity would require extensive re-engineering that would be costly and introduce practical and worker safety concerns as well. For example, one [trade] association member stated that 0 percent shop opacity could only be achieved, if at all, with near total enclosure of the EAF and doubling the flow rate of the emission control system. The commenter stated that only very short (and therefore marginally effective) partition walls could be installed above the crane because of the lack of space between the crane and the roof. They also noted that such short partitions deteriorated quickly due to the heat and other elements. Thus, to increase the size and collection efficiency to meet a 0 percent opacity requirement, the facility would have to raise the roof of the structure at an undetermined cost (a cost that likely would trigger a “major modification”), and potentially enclose the entire monovent, which would likely create worker safety and heat stress issues.

The commenter added, facilities would have to increase the number and volume of fans to the baghouse, as well as require new or additional fans in the shop and additional baghouses because the facility’s current baghouses are operating at close to maximum capacity. Moreover, for servicing, cranes have to be moved to a different part of the melt shop due to the partitions

being so close to the top of the cranes. To achieve compliance, existing facilities such as these also would have to enclose the large openings in the casting area to prevent winds from blowing through the shop or wall off the EAF operations. Neither option is feasible; melt shops are typically long buildings with EAF, LMS, and casting in the same structure.

EPA Response: The cost analysis for new, modified, or reconstructed EAF to achieve 0 percent opacity is based on a "partial" canopy hood and not "partition walls," as the commenter suggests, that would interfere with overhead cranes. In regard to the comment that "costly and impractical re-engineering to achieve 0 percent shop opacity that could only be achieved, if at all, with near total enclosure of the EAF that doubles the flow rate of the emission control system," there are 19 EAF facilities in the EPA EAF dataset that demonstrated with data from 2010 that they were capable of complying with a 0 percent melt shop opacity standard (which we assumed was during melting and refining) and, therefore, belie this concern. And because only 1 facility among the 31 facilities in the EPA EAF dataset had shop opacity greater than 1 percent as an average of all runs in the test, the addition of a canopy hood may be unnecessary and only alteration of the operation of existing hoods may be needed to achieve slightly better capture to achieve 0 percent melt shop opacity during melting and refining. This shows that meeting a new NSPS standard of 0 percent melt shop opacity during melting and refining is within reach by most if not all existing EAF facilities, so is even more likely achievable in any new facility.

In actuality, it is not likely that all current EAF facilities in the industry will need to comply with 40 CFR part 60, subpart AAb, which would only be applicable to new EAF facilities or, for existing facilities, if the result of any future modifications or reconstruction increased emissions and met the provisions in 40 CFR 60.14 for modifications and 40 CFR 60.15 for reconstruction, respectively.[17] Whether or not the modification or reconstruction planned at

[17] Note that modifications pursuant to CAA section 111 need not be "major" to trigger application of the NSPS. Rather, a modification under CAA section 111(a)(4) is defined as a physical change in, or change in the method of operation of, a stationary source which results in *any* increase in emissions. See also 40 CFR 60.14.

the facility would *also* trigger permitting requirements because it is a "major" modification under the permitting regulations is not relevant to the EPA's determination of the BSER. Moreover, the EPA does not agree that it is likely that the construction of the canopy will itself be considered a major modification that triggers permitting requirements. The issue here is whether to meet the revised limit an existing source that modifies needs to raise the roof structure to install equipment to meet the standard. The EPA response to this issue is that it is not required to raise the roof structure so as to be able to install equipment, and we have no knowledge (and the commenter has not provided information showing) that raising the melt shop roof has ever having been done to meet a lower opacity, such as 0 percent.

3. What is the rationale for the final BSER determination and what is the final standard of performance?

We established in the proposal (87 FR 29717-29718) that the use of a canopy hood above the crane rails, while not required to achieve 0 percent melt shop opacity during melting and refining, is a cost-effective method that can be used to do so, with cost effectiveness estimated at $1,700 per ton PM removed in $2022 for a medium-sized facility, annual costs of the canopy, at $1.1 million per year, and with PM reduction of 684 tpy at a medium facility achieving 0 percent melt shop opacity during melting and refining and 6 percent during charging and tapping, as compared to 6 percent opacity at all times. Analyses performed for small and large EAF melt shops produced similar cost-effectiveness values, at $1,800 per ton PM removed and $1,700 per ton PM removed, respectively. The values of $1,800 per ton or less are considered cost effective and, therefore, the use of additional canopy hoods above the crane rails is considered BSER for melt shop opacity for new EAF/AOD using this approach. (See section III.A.1.a of this preamble).

The performance data obtained by the EPA for 31 facilities show that 13 facilities achieved 0 percent opacity during melting and refining and the other 17 achieved very low values of opacity so that the overall average melt shop opacity from all 31 facilities was 0.14

percent. Therefore, considering that the costs are achievable even without the addition of a canopy hood, we conclude the 0 percent opacity is the standard of performance that reflects the degree of emission limitation achievable with application of the BSER for melting and refining.

We also concluded that full enclosure is not needed to achieve 0 percent melt shop opacity during melting and refining. The EPA acknowledges that facilities need sufficient capture ventilation to collect melt shop PM emitted as fugitives, but this does not necessarily require a fully enclosed melt shop, as seen in the data from EAF facilities in 2010 test reports obtained by the EPA where 0 percent opacity was achieved.

Because we do not have sufficient data to show that 0 percent melt shop opacity is achievable during charging and tapping to refute industry's assertion that 0 percent melt shop opacity is not achievable during charging and tapping, nor are these data likely available anywhere else, the final rule retains the current 6 percent NSPS limit for charging and tapping in 40 CFR part 60, subparts AA, AAa, and adds to the final rule for 40 CFR part 60, subpart AAb a testing requirement during these periods along with the requirement to test during melting and refining that is already required for facilities in operation on or before May 16, 2022. Note that the test method protocol for measuring opacity during charging has been modified for the final rule, as discussed in section V.B.1 of this preamble.

4. Are there any relevant energy impacts or nonair quality health and environmental impacts of the selection of the final BSER for melt shop opacity and, if so, how were the final emission limitations based on the BSER affected?

There are no relevant energy impacts or nonair quality health and significant environmental impacts of the final BSER for melt shop opacity. These issues are discussed in detail in sections V.A and V.B of this preamble. No comments were received on these issues.

C. NSPS Requirements for Opacity from Control Devices and Dust Handling for Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After May 16, 2022

We proposed to retain the BSER determinations for proper operation of control devices

and proper dust handling procedures from NSPS subpart AAa in NSPS subpart AAb as well as the limitations of 3 percent and 10 percent opacity limits from control devices and dust handling, respectively. No comments were received on this subject. Similarly, we are finalizing the requirement for opacity from control devices and dust handling in NSPS subpart AAb, as proposed.

D. Startup, Shutdown, Malfunction Requirements for Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Modified, Reconstructed, or Constructed After May 16, 2022

Consistent with *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), the EPA has established standards in 40 CFR 60 subpart AAb that apply at all times. We also are finalizing in 40 CFR 60 subpart AAb specific requirements at 40 CFR 60.272b(c) that override the general provisions for SSM requirements. In finalizing the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained in section IV.D.2 of this preamble has not finalized alternate standards for those periods.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead, they are, by definition, sudden, infrequent, and not reasonably preventable failures of emissions control, process, or monitoring equipment (40 CFR 60.2). The EPA interprets CAA section 111 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 111 standards. Nothing in CAA section 111 or in case law requires that the EPA consider malfunctions when determining what standards of performance reflect the degree of emission limitation achievable through "the application of the best system of emission reduction" that the EPA determines is adequately demonstrated. While the EPA accounts for variability in setting emissions standards, nothing in CAA section 111 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in a "normal or

usual manner" and no statutory language compels the EPA to consider such events in setting CAA section 111 standards of performance. The EPA's approach to malfunctions in the analogous circumstances (setting "achievable" standards under CAA section 112) has been upheld as reasonable by the D.C Circuit in *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 606-610 (2016).

1. What did we propose as the BSER determination and standard of performance?

Consistent with *Sierra Club v. EPA,* 551 F.3d 1019 (D.C. Cir. 2008), the EPA proposed that the PM and opacity standards in 40 CFR subpart AAb apply at all times. We also proposed in 40 CFR part 60, subpart AAb specific requirements at 40 CFR 60.272b(c) that override the general provisions exemptions during SSM periods.

2. What significant comments did we receive and what are our responses?

Comment: A commenter asserted that the EPA must provide work practice standards if the EPA removes SSM exemptions. Subjecting SSM periods to the same limit as those during normal operations was not adequately demonstrated as required per CAA section 111(a)(1) and was not provided in the docket prior to promulgation as per CAA section 307(d). The dataset of stack tests from 33 facilities did not include adequate testing to demonstrate that SSM periods consistently met the limits proposed in 40 CFR part 60, subpart AAb. These stack tests were not conducted during SSM periods, and as such could not provide a basis for concluding that emissions during shutdown and startup could comply with the proposed limits. The commenter asserts that, if the EPA cannot show that compliance with a numerical limit was adequately demonstrated during periods of SSM, and provide that data in the record, then the EPA does not have the legal authority under CAA section 111 to subject those emissions to such a standard.

EPA Response: Consistent with *Sierra Club v. EPA*, this action will ensure that the PM and opacity standards in EAF NSPS 40 CFR 60, subpart AAb apply at all times, including during periods of startup and shutdown. Because *Sierra Club v. EPA* established that emissions standards or limitations must be continuous in nature, the EPA must determine what standard

will apply during periods of SSM. Moreover, CAA section 111(h)(1) provides that the EPA may only provide for work practice standards when the Administrator determines that it is not feasible to prescribe or enforce a numerical work practice standard. We have determined that the numerical standards in EAF NSPS 40 CFR 60 subpart AAb are appropriate as EAF and AOD facilities can comply with the standards during startup and shutdown because the control devices are the same during startup and shutdown as in normal operation and would provide the same protection to PM emissions, both for PM from the control devices as well as opacity from melt shop, control devices, and dust handling. In regard to the 0 percent melt shop opacity standard, this standard in 40 CFR part 60, subpart AAb only applies during melting and refining; startup or shutdown does not fall under the operational description of melting and refining. A opacity standard of 6 percent would apply at all other times.

While commenters argue that the EPA must provide work practice standards, the commenters have not provided information showing that compliance with the numerical emission limitations is not possible during startup and shutdown events and that, therefore, the EPA's determination to apply the PM and opacity standards at all times would be inappropriate. In addition to the standards applying at all times, sources will need to comply with the CAA section 111 general provisions, which include "general duty" requirements in 40 CFR 60.11(d) to operate "in a manner consistent with good air pollution control practice for minimizing emissions." These provisions apply at all times, including during startup and shutdown, as well as during malfunctions.

Comment: A commenter stated if a 0 percent opacity standard for melt shop emissions at all times was implemented, the EPA must exclude periods of malfunctions and upset conditions. The commenter explained that malfunctions have occurred during the melting and casting operations that required extraordinary measures for corrective action, such as a "breakout." In an extremely dangerous situation, breakouts occurred when molten steel escaped from one or more mold strands at the caster or during casting. The commenter stated after a breakout and

subsequent corrective action, emissions were generated and may exit the melt shop, and those emissions should not be considered in determining compliance with the 0 percent opacity melt shop requirement. The commenter said the EPA's proposed approach lacked an understanding of the significant dangers, risks, and related emissions associated with "breakouts" and other malfunction events that occur during the steelmaking processes, and the EPA should reconsider the 0 percent melt shop opacity standard.

EPA Response: The EPA disagrees with the commenter that emissions during a malfunction are not appropriately subject to the standard. Malfunctions that cause exceedances of any part of a rule are considered a violation under the NSPS and are a compliance issue that is relegated to the EPA's enforcement office. Facilities should document the circumstances of the malfunction so as to be able to discuss the special circumstances of the event with the EPA's enforcement officer. It is not the purpose of the BSER to take into account unpredictable, sudden, infrequent events such as what is described by the commenter. We also note that casting is not part of the EAF NSPS source category.

E. Testing and Monitoring Requirements for Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels

1. What did we propose for testing and monitoring?

From the EPA review of the current NSPS's testing and monitoring requirements in 40 CFR part 60, subpart AAa, we evaluated and determined the testing, monitoring, recordkeeping and reporting requirements needed to be clarified and revised" to ensure compliance with the emission standards, considering that the NSPS reflect BSER under conditions of proper operation and maintenance. Consequently, we proposed changes to testing and monitoring in 40 CFR part 60, subparts AA and AAa, and also incorporated some of these requirements along with additional requirements into new 40 CFR part 60, subpart AAb.

Specifically, we proposed amendments to clarify, correct, or refine the rule requirements to enhance compliance and enforcement with 40 CFR part 60, sections 60.271 and 60.271a

‘‘Definitions’’, 60.272 and 60.272a ‘‘Standard for particulate matter’’, 60.273 and 60.273a ‘‘Emission monitoring’’, 60.274a ‘‘Monitoring of operations’’, 60.275a ‘‘Test methods and procedures’’, and 60.276a ‘‘Recordkeeping and reporting requirements.’’

In addition, we proposed that sources complying with 40 CFR part 60, subpart AAb would be required to perform compliance testing every 5 years after the initial testing performed upon startup, as required under 40 CFR 60.8. This requirement for periodic testing already is required in many of the permits for existing EAF in both the EPA’s EAF dataset and in the industry, and is a standard requirement for testing of other sources of PM emissions in many other industrial sectors.

We also solicited in the proposal for comments or data and other relevant information on whether the EPA should change the allotted time to both find and fix the cause of a BLDS alarm from 3 hours to a longer timeframe (*e.g.*, 24 hours as in other rules), or some other duration.

2. What significant comments did we receive on testing and monitoring and what are our responses?

Comment: The commenter said facilities should be allowed 24 hours to respond to BLDS alarms and to complete the response as soon as practical in 40 CFR part 60, subparts AA, AAa, and AAb. The commenter disagreed with the proposed 40 CFR part 60, subpart AAb provisions that would require facilities to determine the cause of all BLDS alarms within 1 hour and alleviate the cause of the alarm within 3 hours by taking the necessary response action. The commenter recommended the EPA adopt a 24-hour timeframe to initiate corrective action and to require that response actions be completed as soon as practicable. This approach would recognize the practical realities in identifying and responding to BLDS alarms. The commenter added that this approach is the same as that used in the Integrated Iron and Steel NESHAP, and is consistent with 40 CFR part 63, subparts X (NESHAP for Secondary Lead Smelting), DDD (NESHAP for Mineral Wool Production), EEE (NESHAP from Hazardous Waste Combustors), MMM (NESHAP for Pesticide Active Ingredient Production), RRR (NESHAP for Secondary

Aluminum Production), and TTT (NESHAP for Primary Lead Smelting). The commenter said there was no justification for the proposal to be different from other existing rules. The commenter added that the proposed 3-hour time period was arbitrary and ignored the numerous scenarios in which it can take longer than 3 hours to identify and fix the cause of an alarm. Allowing facilities 24 hours to identify the cause and requiring facilities to alleviate the cause of the alarm "as soon as practicable" is more practical, particularly where many baghouse compartments must be inspected to determine the cause of an alarm.

The commenter noted that there are situations in which more than 3 hours is needed to respond to a BLDS alarm and address its cause. Because many mills calibrate their BLDS to be very sensitive, the likelihood that a BLDS alarm will be falsely triggered is increased. The commenter included the following examples of situations in which false alarms can occur:

- Weather. BLDS alarms will occasionally trigger during a heavy downpour or when there are significant changes in temperature or humidity.
- Bag Cleaning Cycle. BLDS alarm may trigger at the end of the baghouse cleaning cycle due to the temporary absence of dust in the bags.
- New Bag Start. BLDS alarms can be triggered following a replacement of some or all of the bags in the baghouse.
- Systems Checks/Testing. Some facilities may run systems checks on their BLDS that cause the system to alarm. For example, a facility may check the sensitivity of a BLDS by introducing a handful of flour into a port upstream from the probe. Facilities also evaluate and optimize their BLDS performance through drift checks, response tests, calibration exercises, and other quality assurance procedures. Some of these procedures require the alarm to be triggered in order to test performance, but in other instances the BLDS alarm may be inadvertently triggered during testing.
- Electrical Malfunctions. As BLDS detection is based on contact electrification, alarms can be triggered due to electrical surges impacting the sensors, processing

electronics, or the connections between the sensor and processing electronics. These surges can either be environmental (lightning) or from variations/malfunctions in the BLDS system, its software, or its power source. Additionally, the abrasive environment in the baghouse duct can deteriorate the BLDS probe, probe housing, and housing insulation, which can cause an increase in malfunctions. BLDS alarms may be triggered during temporary power lapses or brief connectivity issues between the sensor and the processing electrics, or between the processing electronics and the system output/alarm. The BLDS can experience brief mechanical or software glitches/errors, including with respect to the sensor's signal amplification or with the configuration of the processing electronics.

- Repair/Maintenance. Some baghouse repair and maintenance activities may be conducted while the baghouse is in operation. In some of these cases, proper inspection and repair requires the baghouse to be operating in order to observe and repair malfunctions/maintenance issues. Often these activities are coordinated with a baghouse operator observing the BLDS readout in real time in order to identify the cause of an earlier alarm or to proactively identify maintenance or performance issues. Baghouse repair and maintenance activities sometimes must be conducted when the baghouse is operating because the repair/maintenance is urgently needed, and it is infeasible to quickly shut down the baghouse. These activities will cause BLDS alarms to trigger. Work on baghouse compartments and conveyances can introduce particulates into the system or dislodge caked or accumulated dust which triggers alarms. Sounding of BLDS alarms also can be caused by maintenance and repair activities conducted when the baghouse is not operating. These activities can introduce foreign material or dislodge accumulations of material from ducts, conveyances, access panels, joints, and other components of the system upstream from the probe. Then when the baghouse is restarted, the newly introduced or

dislodged material can cause the BLDS alarm to be triggered.

The commenter pointed out that it is possible for a baghouse to operate within its emission and opacity limits even if the cause of a BLDS alarm is not identified and corrective measures taken. For example, if a broken bag in a compartment causes an alarm, the compartment can be isolated and shut down without affecting the rest of the baghouse. The commenter noted that determining the cause of the alarm often requires operators to undertake a multi-step troubleshooting process of elimination requiring multiple rounds of physical inspections and diagnostic efforts. This process of elimination often requires more than 3 hours to complete. The process can be very time-consuming, particularly when the BLDS alarm lasts only a short time. Identifying the cause of a brief BLDS alarm, the commenter said, can be very difficult and sometimes proves impossible. Some baghouses in the EAF industry have 25 or more compartments housing 5,000 or more individual bags. Some mills do not have BLDS with detection capability in each separate compartment because the baghouse design does not allow for such monitoring (*e.g.*, multiple compartments sharing common exit plenum). In these instances, mills must continue running and sequentially isolate compartments to determine which compartment may have caused the BLDS alarm. Facilities must then physically examine the compartment(s), which may contain 150 or more individual bags. If a bag has a significant rupture or has been dislodged, the cause of the alarm will likely be readily apparent. However, some alarms can be triggered by extremely small holes in bags and, in these cases, finding the leak by physical inspection can take a long time.

The commenter said that EAF mills can have difficulty responding to multiple, intermittent alarms of short duration. The commenter noted that EAF facilities record the alarm as resolved where investigation shows no evidence of a bag leak. While the facility may be able to respond to each separate alarm in under 3 hours, the commenter said they are aware of one instance in which an enforcement authority determined the company was in violation of the 3-hour response requirement because the total time the facility spent responding to each of the

separate intermittent alarms exceeded 3 hours. The commenter said the enforcement authority misinterpreted the 3-hour response requirement. This example was provided to show how a 3-hour response requirement presents a compliance risk even when individual responses are completed within the 3-hour window. The commenter recommended the following additions be made to 40 CFR 60.273(f) in all three rules in regard to the leak monitors to clarify false alarm situations.

The commenter recommended adding to the requirements in 40 CFR 60.273(f)), 60.273a(f)), and 60.273b(f)) that begin with: "Establishing to the extent acceptable by the delegated authority that the alarm was a false alarm and not caused by a bag leak or other malfunction that could reasonably result in excess PM emissions," the phrase "in which case alarms due to the monitor malfunctioning are not subject to the [24-hour] response action requirement, as long as the [leak] monitor malfunction is timely corrected."

The commenter recommended adding to the requirements in 40 CFR 60.273(f)), 60.273a(f)), and 60.273b(f)) that begin with: "Shutting down the process producing the PM emissions," the phrase *"*provided that shutting down the process unit is not required if an operator reasonably believes repetitive alarms are the result of a [leak] monitor malfunction, and the monitor malfunction is timely repaired."

EPA Response: We appreciate the details provided by the commenters to explain the reasons why a 24-hour response to BLDS alarms is warranted based on technical issues that EAF facility operators face and also why a 24-hour response is justified based on other similar rules that allow a 24-hour response. In light of the rationale provided, we are including the 24-hour response in the revisions to 40 CFR part 60, subparts AA, AAa, and AAb, effective upon promulgation.

In regard to the specific language the commenter suggests including in the rules in 40 CFR 60.273(f)), 60.273a(f)), and 60.273b(f)), the list of potential response actions are not to be taken as exclusive, *i.e*., the responses listed have the caveat that "response actions may include,

but are not limited to, the following, etc." The commenter's suggested changes for 40 CFR 60.273(f) in all 3 rules are redundant within the existing and proposed rules because the phrase "not caused by…..other malfunction that could reasonably result in excess PM emissions" already covers leak monitor malfunction. This is the same issue for 40 CFR 60.273(f) in all 3 rules, where a shutdown is just one option for a response action and not a required action. In all 3 rules in 40 CFR 60.273(f), fixing the leak monitor is the appropriate response action if that is determined to be the cause of the alarm. However, along with changing the response time to 24 hours, we have added a specific item in all three EAF rules in 40 CFR 60.273(f) to make it clear that leak monitor malfunction could be the cause, as follows: "Establishing to the extent acceptable by the delegated authority that the alarm was a false alarm caused by a malfunctioning monitor and not caused by excess PM emissions."

Comment: A commenter asserted that the current compliance demonstration requirements using the fan amperage and damper position monitoring in 40 CFR part 60, subparts AA, AAa are the best methods for assuring compliance with the melt shop NSPS standards. A commenter asserted that the existing fan amperage and damper position monitoring in combination with opacity observations are the best methods of assuring compliance with the NSPS standards for the melt shop. The commenter opposed the proposed new monitoring requirements for 40 CFR part 60, subparts AA and AAa that included:

- Installation of BLDS on all baghouses, including multi-stack baghouses;
- Monitoring and operational restriction for furnace static pressure monitoring based on 15-minute averages on all EAF;
- Monitoring and operational restriction for volumetric flow rate or static pressure at each separately-ducted hood, based on 15-minute averages on all EAF;
- Removal of the option for monitoring and operational restriction for fan amps;
- Adding inspections and maintenance requirements for holes or other openings in the melt shop building; and

- Mandate for shop opacity observations to be made during charging and tapping or during the period of the heat cycle that generates the greatest uncaptured emissions.

The commenter considered these new monitoring requirements to be unnecessary, expensive, and, in some cases, impractical. The commenter said the existing monitoring requirements in 40 CFR part 60, subparts AA and AAa are adequate for demonstrating compliance with the standards. The commenter stated that the existing fan amperage and damper position monitoring have worked efficiently and effectively for many years and the proposed new monitoring would be less effective and would impose "…extreme technical and engineering complications" on EAF plants.

Similarly, the commenter urged the EPA to keep the current requirement in 40 CFR part 60, subparts AA, AAa for monitoring fan amperage in place, because they said this parameter directly correlates to the air flow to the control device, via the fan curve, unique to each site.

EPA Response: The responses to BLDS monitoring requirements, damper position, fan amperage, furnace static pressure, melt shop inspection, melt shop opacity, and volumetric flow and static pressure follow here.

- BLDS Response. We proposed the BLDS monitoring requirement for all baghouses in 40 CFR part 60, subparts AA, AAa, and AAb because BLDS provides better information about EAF baghouse operation and compliance assurance for the PM emission and stack opacity limits than what is currently required in 40 CFR part 60, subparts AA and AAa, and because BLDS monitoring at all baghouses is technically feasible. Currently, as an alternative to COMs, single-stack baghouses are required to install a BLDS and perform EPA Method 9 visible emissions at the stack, whereas modular, multi-stack, negative-pressure or positive-pressure fabric filters are only required to conduct EPA Method 9 visible emissions monitoring. We agree with the commenter that the proposed change to require all types of baghouses to have BLDS should not be made as a correction in 40 CFR part 60, subparts AA and AAa, nor

included in 40 CFR part 60, subpart AAb for all types of baghouses. Therefore, because using BLDS at all baghouses would involve the purchase of equipment not currently installed at facilities not using single-stack baghouses, this requirement is not included in the final rules for 40 CFR part 60, subparts AA and AAa. For 40 CFR part 60, subpart AAb, because for existing facilities that modify or reconstruct, requiring BLDS at baghouses other than those with single stacks would involve the purchase of equipment not currently installed at these facilities, the BLDS requirement is included in the final rule for 40 CFR part 60, subpart AAb only for single stack baghouses. For new sources, the BLDS requirement is included in the final rule for 40 CFR part 60, subpart AAb, only for single stack baghouses because using BLDS on multi-stack baghouses is not demonstrated in the EAF industry due to the high capital cost. Multi-stack baghouses in the EAF industry have vents rather than stacks, are operated at positive pressure, and not amenable to leak detection systems.

- Damper Position Response**.** We proposed changes to the monitoring frequency of damper position in 40 CFR part 60, subparts AA and AAa, and included these proposed changes in 40 CFR part 60, subpart AAb, because of the variability of this parameter during a furnace cycle. As damper position is expected to change during the heat cycle, a once-per-shift monitoring and recordkeeping event fails to provide both the facility and regulatory agencies with the ability to determine if the emissions capture system is being properly operated. Damper position records are intended to be used as a way to evaluate how the total flow (using amperage as surrogate for flow) is partitioned between the separately ducted hoods. Therefore, increasing the recording of damper position provides a more accurate assessment of the capture system throughout a heat cycle. Facilities are already required to record all damper positions during performance testing to demonstrate compliance pursuant to 40 CFR 60.274(c)

and 60.274a(c). We disagree with the commenter that this change should not be made as a correction. Therefore, for the reasons explained at proposal, the final rules for 40 CFR part 60, subparts AA, AAa, and AAb include the requirement for damper position recording and frequency during operation in a manner and frequency consistent with damper position records during the initial or most recent performance test demonstrating compliance with applicable PM standards; and for 40 CFR part 60, subpart AAb, only if damper position data were recorded throughout a complete heat cycle. See 40 CFR 60.274(c)(1) and (i)(5), 60. 274a(c)(1) and (h)(5), and 60.274b(c)(1) and (h)(5). Compliance with this clarified aspect of the rule is required 180 days from the effective date of the final rule amendments for facilities complying with 40 CFR part 60, subparts AA and AAa, the same as the requirement for electronic reporting; and no later than the effective date of the final rule or upon startup, whichever is later, for facilities subject to 40 CFR part 60, subpart AAb.

- Fan Amperage Response. The EPA proposed deleting the monitoring of fan amps on a once-per-shift basis as a surrogate for volumetric flow from at 40 CFR 60.274(b)/60.274a(b) for 40 CFR part 60, subparts AA and AAa due to the increased use of variable speed fans in the industry. Based on comments provided in response to the proposed change, the EPA agrees with the commenter that fan amperage monitoring should be able to be used as a surrogate for volumetric flow. However, the EPA believes this surrogate can only be allowed under some conditions. To maintain consistency with the original intent of the requirement to record fan amperage in 40 CFR part 60, subpart AAa, in the final rules for 40 CFR part 60, subparts AA, AAa, and AAb, fan amperage monitoring can be used as a surrogate for volumetric flow when recorded on a more frequent basis than once-per-shift. The EPA is promulgating for 40 CFR part 60, subparts AA, AAa, and AAb, the requirement for monitoring and recording of fan amperage as frequently as damper position

measurement, *i.e.*, in a manner and frequency consistent with damper position records during the initial or most recent performance test demonstrating compliance with applicable PM standards so that the amperage data provide information that is proportional to volumetric flow in 40 CFR 60.274(c))1) and (i)(5); 60.274(c)(1) and (h)(5); and 60.274b(c)(1)(h)(5). Compliance with this clarified aspect of the rule is required 180 days from the effective date of the final rule amendments for facilities complying with 40 CFR part 60, subparts AA and AAa, the same as the requirement for electronic reporting and no later than the effective date of the final rule or upon startup, whichever is later, for facilities subject to 40 CFR part 60, subpart AAb.

- Furnace Static Pressure Response. We proposed the requirement for monitoring and operational restriction for furnace static pressure monitoring for 40 CFR part 60, subparts AA, AAa, and AAb based on 15-minute averages on all EAF because it provides better information about emissions capture at the EAF and compliance assurance with melt shop opacity requirements at 40 CFR 60.272(a)(3), 60.272a(a)(3), and 40 CFR 60.272b(a)(3) than what is currently required in 40 CFR part 60, subparts AA and AAa. Currently, a furnace static pressure monitoring device is not required if the facility conducts daily shop opacity readings. If a facility elects to use furnace static pressure monitoring for compliance, furnace static pressure is only monitored once per shift in 40 CFR part 60, subparts AA and AAa (see 40 CFR 60.273(d)/60.273a(d) and 40 CFR 60.273(d)/60.274a(b)). The EPA proposed requiring continuous monitoring of furnace static pressure because it would provide information about capture at the EAF on a more frequent basis and because many facilities already use this equipment. Because using this monitoring method/compliance option would involve the purchase of equipment not currently available or installed at all subject facilities, we agree with the commenter that this change should not be made as a correction nor included in 40 CFR part 60, subparts

AA, AAa, and AAb. Therefore, this requirement for 40 CFR part 60, subparts AA, AAa, and AAb is not included in the final rules.

In response to comments regarding proposed averaging periods of 15 minutes for furnace static pressure, the EPA has modified the averaging period language in the final rule for 40 CFR part 60, subparts AA, AAa, and AAb (40 CFR 60.274(f), 60.274a(f), and 60.274b(f)) to be "no greater than 15 minutes." This modification allows greater flexibility for establishing monitoring setpoints to capture the variability during short periods that are much less than 15 minutes.

- Melt Shop Inspection Response. We proposed a clarification that the melt shop be inspected for holes or other openings that would allow particulate matter to escape for 40 CFR part 60, subparts AA, AAa, and included in 40 CFR part 60, AAb, because this procedure provides compliance assurance with melt shop opacity requirements, and is better than what is currently required at 40 CFR 60.272(a)(3)/60.272a(a)(3). Currently, inspections are required for equipment important to the performance of the capture system at 40 CFR 60.274(e)/60.274a(d), which specifies that inspections must include observations of physical appearance of the equipment. We disagree with the commenter that changes to 40 CFR part 60, subparts AA and AAa, should not be made as a correction because we understand that the melt shop building itself acts as a portion of the capture system particularly during charging and tapping. Since this inspection would not involve the purchase of equipment not currently available or installed at the facility and arguably is already addressed under the current requirement for inspections, the clarification that inspection for holes or other openings in the melt shop building is part of the capture system inspection is included in the final rules for 40 CFR part 60, subparts AA, AAa, and AAb. Compliance with this clarified aspect of the rule is required 180 days from the effective date of the final rule amendments for facilities complying with 40 CFR part 60, subparts AA and

AAa, the same as the requirement for electronic reporting and no later than the effective date of the final rule or upon startup, whichever is later, for facilities subject to 40 CFR part 60, subpart AAb.

- Melt Shop Opacity Response. We proposed the clarification that melt shop opacity observations for 40 CFR part 60, subparts AA and AAa must be made during charging and tapping or during the period of the heat cycle that generates the greatest uncaptured emissions for 40 CFR part 60, subparts AA and AAa because this requirement provides better information about EAF and AOD capture system performance and compliance assurance with melt shop opacity requirements at 40 CFR 60.272(a)(3)/60.272a(a)(3) beyond what is currently required. The NSPS at 40 CFR part 60, subpart AA has a 6 percent opacity limit at the melt shop except for during periods of charging and tapping, for which 20 percent and 40 percent are allowed, respectively (see 40 CFR 60.272(a)(3)). When 40 CFR part 60, subpart AAa was promulgated in 1984, the exceptions for periods of charging and tapping were removed, and, instead, the opacity limit for the EAF melt shop was set at 6 percent at all times (see 40 CFR 60.272a(a)(3)). In 40 CFR part 60, subpart AA, the EPA had allowed a higher opacity limit during charging and tapping because those periods had greater potential for uncaptured emissions than during melting and refining. Therefore, we agree with the commenter that the clarification in the proposal that opacity should be tested at the site with the greatest uncaptured emissions should not be made for 40 CFR part 60, subpart AA. However, we disagree with the commenter that the changes to 40 CFR part 60, subpart AAa should not be made as clarifications or corrections because the proposed rule edits clarify that the 6 percent opacity applies at all times in all locations of the melt shop, as explained below. In 40 CFR part 60, subpart, AAa, it was required that sources constructed, modified, or reconstructed after 1983 achieve a greater level of capture performance during

charging and tapping than previously required, and the exceptions during charging and tapping that were in 40 CFR part 60, subpart AA were removed. Therefore, the EPA is including in the final rule for 40 CFR part 60, subpart AAa the proposed clarification to the opacity testing option in 40 CFR 60.273a(d)(2), when a facility chooses to forgo using a furnace static pressure monitoring device on an EAF equipped with a DEC system, to test opacity no less than once per week from the tap of one EAF heat cycle to the tap of the following heat cycle. This clarification along with the test method and procedure requirements in 40 CFR 60.275a(e), make it clear that the facility is required to demonstrate compliance with melt shop opacity at all times, including the period of the furnace cycle that provides the greatest challenge to the capture system, which was originally intended when creating 40 CFR part 60, subpart AAa. In addition, the proposed clarification in 40 CFR 60.272a(a)(3) is being finalized in this rulemaking for 40 CFR part 60, subpart AAa, that where it is possible to determine that a number of visible emission sites relate to only 1 incident of visible emissions, only 1 observation of shop opacity is required, at the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during the single incident. The comments concerning the requirement in the proposed changes to 40 CFR part 60, subpart AAb, for shop opacity observations to be made during charging and tapping or during the period of the heat cycle that generates the greatest uncaptured emissions, are no longer relevant due to changes made to the proposed 40 CFR part 60, subpart AAb for the final rule, to allow 6 percent opacity during charging and tapping and to require testing during all phases of operation, *i.e.*, melting and refining, charging, and tapping, Because monitoring opacity is already required in 40 CFR part 60, subpart AAa in the various parts of the rule discussed in the preceding paragraphs, the clarifications of measuring melt shop opacity do not involve the purchase of equipment not currently used at the facility and, therefore, are

included in this final rule. Compliance with these rule clarifications of 40 CFR part 60, subpart AAa are required 180 days from the effective date of the final rule amendments, the same as the requirement for electronic reporting.

- Volumetric Flow and Static Pressure Response. We proposed the requirement to continuously monitor and have operational restrictions for either volumetric flow rate or static pressure at each separately ducted hood for 40 CFR part 60, subpart AA, AAa, and AAb because it provides better information about emissions capture at the EAF and AOD and compliance assurance with melt shop opacity requirements at 40 CFR 60.272(a)(3), 60.272a(a)(3), and 60.272b(a)(3) than what is currently required in 40 CFR part 60, subparts AA and AAa. In 40 CFR part 60, subpart AA, AAa, and AAb, there are multiple options for monitoring operations at a facility (40 CFR 60.274(b),60.274a(b), and 60.274b(b)), which may include monitoring of volumetric flow and static pressure at each separately ducted hood. Continuous monitoring of volumetric flow rate or static pressure at each separately ducted hood would provide better information about capture at each separately ducted hood and a more direct measure of capture at each separately ducted hood. However, we agree with the commenter that this change should not be made as a correction because using this monitoring method/compliance option would involve the purchase of equipment not currently available or installed at facilities. Therefore, this requirement is not included in the final rule for 40 CFR part 60, subparts AA, AAa, and AAb.

Comment: A commenter asserted that the CAA limits the EPA's NSPS revision authority to only new sources**.** Commenter stated there is no denying that the proposed monitoring and associated revisions to 40 CFR part 60, subpart AA and AAa are materially substantive and are not error corrections, clarifications, or clerical adjustments. These changes far exceed the EPA's legal authority to revise a NSPS applicable to existing sources. The commenter continued, the EPA's legal authority under the CAA is very limited as it relates to revisions to existing NSPSs.

The 40 CFR part 60, subpart AA and AAa proposed revisions (BLDS, furnace static pressure monitoring, volumetric flow monitoring, etc.) all constitute an "emission limitation" as defined by the CAA and, therefore, constitute a "standard of performance." The EPA has no authority under the CAA to make any such revisions to a "standard of performance" unless those revisions are expressly applicable to "new sources." The commenter said the proposed changes to the melt shop monitoring requirements were arbitrary and violate the basic premise of NSPS that revisions apply only to facilities that qualify as new, modified, or reconstructed after proposal of the NSPS requirements.

The commenter also said the EPA does not have the authority to add new monitoring requirements for charging and tapping operations. The existing shop opacity monitoring in 40 CFR part 60, subpart AAa verifies efficiency of the DEC during normal operations. By expanding monitoring requirements to cover tapping and charging (a time period the furnace roof is rolled back, and the DEC control is not engaged), the EPA was creating new monitoring requirements designed to monitor a standard that was not included in the original rule. The proposed monitoring during charging and tapping cannot evaluate DEC capture efficiency, as the shop opacity observations were originally designed to do. Hence, the addition of the new monitoring, the commenter said, represents an unlawful revision to the existing NSPS standard.

The commenter was concerned the EPA was adding entirely new installation, monitoring, and maintenance requirement for charging and tapping furnace modes, including requirements for operators to install, calibrate, and maintain monitoring devices that continuously record the capture system damper position(s) and either the volumetric flow rate through each separately ducted hood or the rolling 15-minute average static pressure at each separately ducted hood. The commenter said these requirements are unnecessary and that they ignore the 1999 rulemaking that provided alternative monitoring methods. The commenter also argued the EPA failed to provide a reasonable explanation for these changes, had not explained why the additional monitoring is needed, had not explained the EPA's change in position from prior EAF steel

NSPS rulemakings, and had neglected to account for any costs associated with the monitoring requirements.

EPA Response: General Monitoring Response: We proposed various monitoring changes in 40 CFR part 60, subparts AA and AAa for purposes of providing better information about EAF baghouse operation and compliance assurance for the PM emission limit at 40 CFR 60.272(a)(1)/60.272a(a)(1), and EAF capture system performance and compliance assurance with melt shop opacity requirements at 40 CFR 60.272(a)(3) and 60.272a(a)(3) than what is currently required.

We learned through public comments that some of the monitoring changes would require significant capital investment through equipment purchases; therefore, the changes requiring purchases of equipment are not included in the final rule for 40 CFR part 60, subparts AA and AAa. The requirements that we are finalizing do not make the standards more stringent; therefore, these changes do not implicate the commenter's concern that we have improperly revised the NSPS applicable to existing sources. For these other monitoring changes that are included in the final rule, either as proposed or with modification of proposed requirement, the compliance date is 180 days from the effective date of the final rule amendments for facilities complying with 40 CFR part 60, subparts AA and AAa, which is the same as the requirement for electronic reporting. This time period is to allow facilities to prepare for any changes to reporting and recordkeeping.

The 4 proposed monitoring requirements that are not included in the final rule are for BLDS for multi-stack baghouses for 40 CFR part 60, subparts AA, AAa, and AAb; melt shop opacity for 40 CFR part 60, subpart AA only; furnace static pressure monitoring and operation for 40 CFR part 60, subparts AA, AAa, and AAb; and volumetric flow and static pressure monitoring and operation for 40 CFR part 60, subparts AA, AAa, and AAb. The 2 proposed monitoring requirements that have been retained in the final rule, as proposed, are melt shop inspection (for 40 CFR part 60, subparts AA, AAa, and AAb) and melt shop opacity (for 40 CFR

part 60, subparts AAa and AAb). The 2 proposed monitoring requirements that have been retained with modification are for damper position and for fan amperage (for 40 CFR part 60, subparts AA, AAa, and AAb), where we are finalizing the requirement for facilities to record damper positions and fan amperage in a manner and frequency consistent with records made during the initial or most recent performance test demonstrating compliance with applicable PM standards. For additional explanation and rationale behind the 7 proposed requirements and their disposition in the final rule, refer to the discussions in this preamble under the following section headings (listed alphabetically): BLDS Response; Damper Position Response; Fan Amperage Response; Furnace Static Pressure Response; Melt Shop Inspection Response; Melt Shop Opacity Response; and Volumetric Flow and Static Pressure Response.

Comment: A commenter asserted that the current compliance demonstration requirements using the fan amperage and damper position monitoring in 40 CFR part 60, subparts AA, AAa are the best methods for assuring compliance with the melt shop NSPS standards and, therefore, the commenter opposes the proposed new monitoring requirements for 40 CFR part 60 subpart AAb.

The commenter opposed the following proposed new monitoring requirements for 40 CFR part 60 subpart AAb:

- Installation of bag leak detection monitoring systems on all baghouses, including multi-stack baghouses;
- Monitoring and operational restriction for furnace static pressure monitoring based on 15-minute averages on all EAF;
- Monitoring and operational restriction for volumetric flow rate or static pressure at each separately-ducted hood, based on 15-minute averages on all EAF;
- Removal of the option for monitoring and operational restriction for fan amps;
- Adding inspections and maintenance requirements for holes or other openings in the melt shop building; and

- Mandate for shop opacity observations to be made during charging and tapping or during the period of the heat cycle that generates the greatest uncaptured emissions.

The commenter considered these new monitoring requirements to be unnecessary, expensive, and, some cases, impractical. The commenter said the existing monitoring requirements (in 40 CFR part 60, subparts AA and AAa) are adequate for demonstrating compliance with the standards. The commenter stated that the existing fan amperage and damper position monitoring have worked efficiently and effectively for many years and the proposed new monitoring would be less effective and would impose extreme technical and engineering complications on EAF plants. Similarly, a commenter urged the EPA to keep the current requirement for monitoring fan amperage in place, because they said this parameter directly correlates to the air flow to the control device, via the fan curve, which is unique to each site.

A commenter stated the EPA should clarify how the proposed new monitoring requirements improve compliance demonstration. The commenter said it was unclear how the additional monitoring requirements in the proposed [40 CFR part 60,subpart AAb] rule will improve data or accuracy in demonstrating compliance with applicable requirements. The proposed NSPS 40 CFR part 60, subpart AAb requires monitoring of parameters that are not required to be monitored under the existing NSPS 40 CFR part 60, subparts AA and AAa standards. The commenter recommended the EPA explain the benefits of new monitoring techniques and additional monitoring parameters. The monitoring requirements should provide enough data to accurately demonstrate compliance with applicable requirements. The commenter added that the EPA must consider the cost to air agencies and facilities and associated benefits to compliance before requiring additional monitoring. Additional monitoring with no clear benefit is burdensome for both regulated facilities and delegated authorities due to additional equipment, maintenance, and operator costs.

EPA Response: We considered the comments submitted by the commenter and have modified the final rule for 40 CFR part 60, subpart AAb for certain proposed requirements to

reflect this and other comments received, and removed other requirements entirely. We included some monitoring requirements in the final rules, as proposed. Our response to each issue listed by the commenter are described in this section in the EPA responses to the comments, as follows: BLDS Response; Damper Position Response; Fan Amperage Response; Furnace Static Pressure Response; Melt Shop Inspection Response (as well as the EPA's response to the proposed requirements in 40 CFR 60.274b(d) for 40 CFR part 60, subpart AAb in regard to allowing operators discretion in an inspection as to what issues "materially impact" the capture system performance); Melt Shop Opacity Response; Volumetric Flow and Static Pressure Response; and General Monitoring Response.

The comment concerning a proposed requirement in 40 CFR part 60, subpart AAb for shop opacity observations to be made during charging and tapping or during the period of the heat cycle that generates the greatest uncaptured emissions is no longer relevant due to changes made to the proposed 40 CFR part 60, subpart AAb for the final rule, to allow 6 percent opacity during charging and tapping and to require testing during all phases of operation, *i.e*., melting and refining, charging, and tapping.

Comment: A commenter asserted that the EPA should define the term "material impact" (40 CFR 60.274e, 60.274a(d), and 60.274b(d)) in terms of opacity limits and only require repairs when holes result in noncompliance with the opacity standards.

A commenter recommended the EPA better define a "material impact" on the capture system because they said the phrase was too vague. Any airflow changes, they said, may theoretically impact capture efficiency to some extent, but fluctuations that do not affect the compliance of the facility with the substantive emission and opacity standards should not be prohibited. The EPA should define material impacts in terms of opacity limits by revising 40 CFR part 60, subparts AA, AAa, and AAb to only require repairs to openings that lead to noncompliance with the opacity standards.

EPA Response: The Melt Shop Inspection Response earlier in this section provides part

of the EPA response to this comment concerning proposed requirements for 40 CFR part 60, subpart AAb (40 CFR 60.274b(d)), which is the same as the EPA response for the proposed clarifications in 40 CFR part 60, subparts AA and AAa (40 CFR 60.274(e) and 60.274a(d)) and explains why we disagree with the commenter and are including the requirement to inspect for holes or other openings in the melt shop in the final rules to ensure compliance with the opacity standards in 40 CFR part 60, subparts AA, AAa, and AAb.

In addition, for 40 CFR part 60, subpart AAb, we proposed the requirement for monthly inspections to include the language to address issues that are "determined by the operator to materially impact the efficacy of the capture system" in 40 CFR 60.274b(d). This allows for a determination by the operator as to whether an identified issue is to be considered a true deficiency that is expected to impact capture system performance, as opposed to the language in 40 CFR part 60, subpart AAa that requires maintenance for "any deficiency." Therefore, we agree with this aspect of the comment and are including the proposed rule language for monthly inspections that allow for operator discretion as to what issues "materially impact" the capture system performance in the final rule for 40 CFR part 60, subpart AAb (40 CFR 60.274b(d)).

Comment: A commenter asserted that the EPA should clarify the calculation for determining compliance with the opacity limits when using EPA Method 9 for 40 CFR part 60, subpart AAb. The commenter asked the EPA to clarify in the rule how facilities should determine compliance with the opacity limits. The commenter noted that compliance with the shop opacity limits will be determined based on the arithmetic average of 24 consecutive 15-second opacity observations over a 6-minute period. The commenter said that it is their understanding that the proposed zero opacity standard does not require all 24 15-second EPA Method 9 observation periods to be zero percent and that some of the 24 readings may exceed 0 percent provided the arithmetic average rounds down to 0. Similarly, in calculating compliance with the existing 6 percent shop opacity standard, some readings can exceed 6 percent provided the arithmetic average rounded down is below 6 percent. The commenter asked the EPA to

confirm their interpretation of the rule is correct.

The commenter noted that this approach is consistent with prior NSPS rulemakings, including 40 CFR part 60, subpart KK (Lead-Acid Battery Manufacturing) and 40 CFR part 60, subpart NN (Phosphate Rock Plants). However, the commenter said the EPA specified in 40 CFR part 60, subparts KK and NN that compliance with the opacity standard is determined by taking the average opacity over a 6-minute period, according to EPA Method 9, and rounding the average to the nearest whole percentage (45 FR 2790 and 2794; January 14, 1980 and 47 FR 16564, 16566, 16582, and 16586; April 16, 1982). The commenter recommended the EPA add the same explanation provided in these earlier NSPS in the final shop opacity limit.

EPA Response: The method for calculating opacity has not changed substantially for 40 CFR part 60, subpart AAb; the final rule incorporates the current EPA Method 9 procedures for melting and refining, and for tapping (see section IV.B.2 in this preamble for changes to opacity measurement procedures with EPA Method 9 during charging). When determining the final value for opacity in 40 CFR part 60, subpart AAb, facilities should round to the nearest whole number (0 percent). Therefore, an average opacity level calculated to be 0.49 percent would round (down) to 0 percent.

3. What is the rationale for the final requirements for testing and monitoring?

We are finalizing the proposed requirement in 40 CFR part 60, subparts AA, AAa, and AAb that the melt shop be inspected for holes or other openings that would allow PM to escape because it clarifies the building inspection requirement already in the current NSPS. We are also incorporating into the final rules for 40 CFR part 60, subparts AA, AAa, and AAb the allowance of up to 24 hours to find and fix baghouse leaks following a BLDS alarm event because it is commensurate with many other EPA rules and no evidence exists for the specific need for limiting the tie period to 3 hours for EAF. The reasons that more than 3 hours and up to 24 hours is needed to respond to BLDS alarms provided by the commenter are valid. We are finalizing that sources complying with 40 CFR part 60, subpart AAb will be required to perform

compliance testing every 5 years after the initial testing performed upon startup, as required under 40 CFR part 60.8. This requirement is already required in many of the permits for existing EAF in the EAF dataset and in the industry, and is a standard requirement for testing for other sources of PM emissions for many other industrial sectors.

We learned through public comments that some of the proposed monitoring changes, BLDS monitoring, furnace static pressure monitoring and operation, and volumetric flow and static pressure monitoring and operation, would require significant capital investment through equipment purchases. Therefore, these changes requiring purchases of equipment are not being finalized for 40 CFR part 60, subparts AA, AAa, and AAb.

We are finalizing 2 proposed monitoring requirements for 40 CFR part 60, subparts AA, AAa, and AAb, which are the requirements for melt shop inspection and stipulation that the melt shop opacity limits apply at all times during the designated periods of applicability under the rules. We are also finalizing the proposed damper position and fan amperage monitoring requirements with modifications. Other miscellaneous monitoring requirements also are being finalized with modifications resulting from comments on the proposed requirements, as described in in this section.

All testing and monitoring requirements proposed and finalized in this action were evaluated to ensure compliance with the NSPS emission standards under conditions of proper operation and maintenance. However, because we learned through comments that some of the proposed changes to monitoring in the existing NSPS rules would incur unintended costs, these requirements were either not finalized in their entirety or were finalized with modifications.

F. Electronic Reporting

The EPA is finalizing the proposed requirement that owners and operators of EAF and AOD subject to the current and new NSPS at 40 CFR part 60, subparts AA, AAa, and AAb submit electronic copies of required performance test reports and any semiannual excess emissions and continuous monitoring system performance and summary reports, through the

EPA's CDX using the CEDRI. A description of the electronic data submission process is provided in the memorandum *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*[18], available in the docket for this action, and hereafter referred to as the "Electronic Reporting Memorandum." The finalized rule requires that performance test/demonstration of compliance results collected using test methods that are supported by the EPA's ERT as listed on the ERT website[19] at the time of the test be submitted in the format generated through the use of the ERT or an electronic file consistent with the xml schema on the ERT website, and other performance test/demonstration of compliance results be submitted in PDF using the attachment module of the ERT.

For semiannual reports, the finalized rule requires that owners and operators use the appropriate spreadsheet template to submit information to CEDRI. The final versions of the templates for these reports are included in the docket for this action.[20]

Additionally, the EPA has identified 2 broad circumstances in which electronic reporting extensions may be provided. These circumstances are: (1) Outages of the EPA's CDX or CEDRI which preclude an owner and operator from accessing the system and submitting required reports; and (2) *force majeure* events, which are defined as events that will be or have been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevent an owner and operator from complying with the requirement to submit a report electronically. Examples of *force majeure* events are acts of nature, acts of war or terrorism, equipment failure, or safety hazards beyond the control of the

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[18] *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*. Memorandum, Measurement Policy Group, U.S. Environmental Protection Agency, Research Triangle Park, NC. August 19, 2020.

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

[20] See 40 CFR Part 60, Subpart AA, AAa, and AAb, *Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels*, 40 CFR Part 60.276(g) Semiannual Compliance Report Spreadsheet Template, available at Docket ID No. EPA-HQ-OAR-2002-0049-0064.

facility. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a report by the reporting deadline for reasons outside of their control. In both circumstances, the decision to accept the claim of needing additional time to report is within the discretion of the Administrator, and reporting should occur as soon as possible.

The electronic submittal of the reports addressed in this final rulemaking increase the usefulness of the data contained in those reports and is keeping with current trends in data availability and transparency. Electronic submittal would further assist in the protection of public health and the environment by improving compliance, facilitating the ability of regulated facilities to demonstrate compliance with requirements, and by facilitating the ability of delegated state, local, Tribal, and territorial air agencies and the EPA to assess and determine compliance. Ultimately, electronic reporting would reduce the burden on regulated facilities, delegated air agencies, and the EPA by making the data easy to record and read. Electronic reporting also eliminates paper waste and redundancies and minimizes data reporting errors. The resulting electronic data are more quickly and accurately accessible to the affected facilities, air agencies, the EPA, and the public. Moreover, electronic reporting is consistent with the EPA's plan[21] to implement Executive Order 13563 and is in keeping with the EPA's agency-wide policy[22] developed in response to the White House's Digital Government Strategy.[23] For more information on the benefits of electronic reporting, see the "Electronic Reporting Memorandum" discussed earlier in this section.

No comments were received on electronic reporting. Therefore, we are finalizing the

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

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

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

requirements for electronic reporting as proposed.

G. Effective Date and Compliance Dates

Pursuant to CAA section 111(b)(1)(B), affected sources that commence construction, reconstruction, or modification after May16, 2022, must comply with all requirements of 40 CFR part 60, subpart AAb, no later than **[INSERT DATE OF PUBLICATION OF FINAL RULE]** or upon startup, whichever is later.

The date for complying with the ERT submission requirements is **[INSERT DATE 180 DAYS AFTER OF PUBLICATION OF FINAL RULE]**. The date for complying with the changes in the current rules, 40 CFR part 60, subparts AA and AAa is **[INSERT DATE 180 DAYS AFTER PUBLICATION OF FINAL RULE]** publication of the final rule.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the air quality impacts?

For 40 CFR part 60, subpart AAb, reductions in PM and $PM_{2.5}$ potentially emitted from new, modified, and reconstructed EAF compared to these emissions allowed under the current NSPS subpart AAa with 6 percent melt shop opacity will have a beneficial air impact.

Based on the actual emissions emitted by 31 facilities in the EAF dataset, where the actual average opacity was 0.14 percent, the emissions impact for PM from 9 new, modified, or reconstructed EAF facilities projected in the next 10 years (estimated to reflect 3 small, 4 medium, and 2 large) is estimated to be an emissions reduction of 134 tons PM that would otherwise be emitted in 2032. Using an estimate of 0.218[24] for the ratio of $PM_{2.5}$ to PM the emissions impact for $PM_{2.5}$ from nine new facilities projected in the next 10 years, as above, there would be an emissions reduction of 28 tons of $PM_{2.5}$ in 2032. Details of these emissions estimates can be found in the "Emissions Memorandum" discussed in section IV.A.2.

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[24] The $PM_{2.5}$ to PM ratio is an average of similar uncontrolled sources, as cited in *Evaluation of $PM_{2.5}$ Emissions and Controls at Two Michigan Steel Mills and a Coke Oven Battery*. Final Report. Work Assignment 4-12 under EPA Contract No. 68-D-01-073 by RTI International, Research Triangle Park, NC. U.S. Environmental Protection Agency, Research Triangle Park, NC. February 2006.

No actual PM emission reductions are estimated for the new PM limit for facility-wide total baghouse emissions in lb/ton. The EPA did not estimate PM emission reductions from new, modified, and reconstructed sources under the facility-wide total baghouse limit because based the 2010 EAF dataset, all facilities in the dataset are already achieving an emission level comparable to the limit being finalized in this action.

B. What are the secondary impacts?

A secondary impact as a result of this rule is that solid wastes may increase slightly, with an estimated 15 tons per facility per year based on 2010 EAF performance, with the potential additional waste from PM collected to meet the 0 percent melting and refining opacity limit under NSPS subpart AAb. The small increase in solid wastes would be the same for both the carbon and specialty steel shops. However, most PM collected from EAF is recycled to reclaim zinc, which also defrays some of the disposal costs.[25, 26]

Additionally, a relatively small increase in energy may result from the use of electricity to power fans that draw EAF and AOD exhaust air into the canopy hood that captures the PM and sends PM-laden air to the baghouse, at 66, 940, 4,700 MW-hr per year for small, medium, and large facilities, respectively. However, if the A/C ratio of the fabric filters is lowered to meet the facility baghouse standard due to an increase in number of bags, some decrease in energy use may occur.

Finally, there will be no water or noise impacts with the promulgated NSPS subpart AAb.

C. What are the cost impacts?

Costs were estimated for regular testing every 5 years for 9 new facilities projected in the 10 years after May 16, 2022. The estimated annual testing costs for each facility are $10,625 per year ($2022) for conducting EPA Method 5 for PM emissions at each baghouse's exhaust over a

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[25] *Proven Waelz Kiln Technology*. Accessed 2/18/22. *http://www.globalsteeldust.com/waelz_kiln_technology*.

[26] Rütten, J. *Application of the Waelz Technology on Resource Recycling of Steel Mill Dust*. Düsseldorf: GmbH. D-40225, 2006.

5-year period, using an estimate of 1.64 baghouses per facility based on the EAF data. While new, modified, or reconstructed sources that start up after May 16, 2022, are subject to testing every 5 years under the finalized NSPS subpart AAb, EPA Method 5 testing is required upon initial startup under 40 CFR 60.8. Therefore, in the first 5 years after startup, there will be no testing costs as a result of the finalized rule. Then, in the sixth through the tenth year after initial startup after May16, 2022, the estimated new, modified, or reconstructed sources will incur costs of approximately $9,562 per year ($2022) per facility for testing, based on an estimate of 0.9 new, modified, or reconstructed facilities per year (0.9 x $10,625). Due to the estimated staggered startup of these new, modified, or reconstructed facilities, with 0.9 new, modified, or reconstructed facilities starting each year after the proposal (May 16, 2022), the total costs for testing for all new, modified, or reconstructed facilities under this rule after the initial testing required under 40 CFR part 60.8 will range from approximately $523,000 ($2022) in the sixth year after May 16, 2022 (corresponding to 5.4 new facilities), to a total of approximately $900,000 in the tenth year after May 16, 2022 (reflecting costs for 9 facilities, with testing costs of approximately $100,000 per facility per year), where the testing costs that would occur in years 6 through 10 are for the new, modified, or reconstructed facilities that start up in years 1 through 5 after May 16, 2022.

Based on information from 2010 through 2017 obtained by the EPA for 31 EAF facilities, the EPA found the average opacity to be 0.14 percent, with about half of the units achieving 0 percent opacity in the tests. Because opacity in the baseline is already low, the EPA expects any new, modified, or reconstructed facility would be able to meet the promulgated opacity and PM limits without any additional control devices beyond those already required by the NSR program, applicable state requirements or by minor process changes to improve capture of exhaust flows or other process parameters, if needed. While the actual cost impacts of the promulgated 0 percent opacity for melting and refining and 6 percent opacity for charging and tapping would likely be substantially lower, the EPA developed an upper bound estimate of

potential compliance costs based upon the assumption that affected units would install a partial roof canopy above the crane rails to ensure 0 percent opacity during melting and refining and 6 percent opacity during charging and tapping compared to a hypothetical baseline model facility meeting 6 percent opacity at all times. These costs to achieve the opacity requirements are estimated to be $86,000, $1,140,000, $5,700,000 ($2022) per year per facility for small, medium, and large model facilities, respectively.

Total annual costs for NSPS subpart AAb, based on nine new, modified, or reconstructed facilities in the first 10 years after May 16, 2022, are $560,000 per year ($2022) for 3 small facilities, $4.9M per year for 4 medium facilities, and $11.5M per year for 2 large facilities, for a total of $17M per year ($2022) for 9 new facilities in the tenth year after May 16, 2022, using the same staggered startup rate described for testing costs. Details of the cost estimates for the final rule can be found in the *"*Cost Memorandum" discussed in section IV.A.2 (with proposal costs updated to 2022[27]) which can be found in the docket for this rule.

For the promulgated mass-based PM standard in lb/ton for facility-wide total baghouse PM emissions, we estimated the capital and annual costs between a baseline scenario based on the current NSPS individual baghouse concentration limit (in gr/dscf) in 40 CFR part 60, subparts AA and AAa and a scenario based on a lower total facility-wide baghouse PM emissions in a mass-based limit (in lb/ton), which is the format for the standard of performance we are promulgating. Because data from the 31 existing EAF facilities in the 2010 dataset used by the EPA to develop the facility-wide PM limit show these facilities could already meet the 0.16 lb/ton total facility baghouse PM limit, we expect the promulgated mass-based standard applied to future new, modified, and reconstructed EAF facilities would be feasible and pose minimal cost impacts, if any.

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[27] In the time since the proposal costs were assessed in 2020, inflation has increased with a subsequent increase in the gross national product (GNP), which is the basis for the U.S. dollars used in the costs estimates. In addition, interest rates, which affect capital costs, increased from 3.5 percent to 7.5 percent from proposal cost preparation (in 2021) to final rule cost preparation (in 2022).

Additional cost analysis, including calculation of costs using the upper bound cost estimates for the installation of partial roof canopies, can be found in the Economic Impact Analysis (EIA) associated with this final rule, which is available in the docket for this rule. The EIA additionally presents costs in terms of the present value and equivalent annual value of projected compliance costs over the 2023 to 2032 period discounted at 3 and 7 percent.

D. What are the economic impacts?

Economic impact analyses focus on changes in market prices and output levels. If changes in market prices and output levels in the primary markets are significant enough, impacts on other markets may also be examined. Both the magnitude of costs associated with the promulgated requirements and the distribution of these costs among affected facilities can have a role in determining how the market will change in response to a regulatory requirement. As discussed in section IV.B. of this preamble, the cost analysis incorporates the assumption that units affected by the new NSPS subpart AAb would install a partial roof canopy above the crane rails to ensure 0 percent melt shop opacity compared to a hypothetical baseline model facility meeting 6 percent opacity. The costs should be viewed as upper bound estimates on the potential compliance costs as the EPA expects any new, modified or reconstructed facility would be able to meet the promulgated opacity and PM limits without any additional control devices beyond those already required by the NSR program, applicable state requirements, or by minor process changes to improve capture of exhaust flows or other process parameters, if needed. As discussed in the EIA, even under the upper bound cost assumptions described, the EPA expects the potential economic impacts of this final rule will be small.

As required by the Regulatory Flexibility Act (RFA), we performed an analysis to determine if any small entities might be disproportionately impacted by the promulgated requirements. The EPA does not know what firms will construct new facilities in the future and, as a result, cannot perform a cost-to-sales analysis with the same confidence as we do with firms owning existing facilities. However, based on an assessment of the new units built during the

2011 to 2020 period and the units that have been announced, which are all owned by firms that are not considered to be small businesses, the EPA does not believe it is likely that any future facilities will be built by a small business. See the EIA in the docket for this action for additional information on the analysis presented in this section.

E. What are the benefits?

The new requirements being finalized in 40 CFR subpart AAb are expected to reduce PM emissions, including $PM_{2.5}$. In addition, the revisions to 40 CFR part 60, subparts AA and AAa will clarify the rules, enhance compliance and enforcement, and is expected to reduce PM emissions, including $PM_{2.5}$. As explained in section IV.A of this preamble, the requirements are projected to reduce 28 tons of $PM_{2.5}$ in 2032. These emissions reductions are expected to produce health benefits in the affected locations. The *Integrated Science Assessment for Particulate Matter* (ISA)[28] contains synthesized toxicological, clinical, and epidemiological evidence that the EPA uses to determine whether each pollutant is causally related to an array of adverse human health outcomes associated with either acute (*i.e.*, hours or days-long) or chronic (*i.e.*, years-long) exposure. For each outcome, the ISA includes the EPA conclusions as to whether this relationship is causal, likely to be causal, suggestive of a causal relationship, inadequate to infer a causal relationship, or not likely to be a causal relationship.

In the ISA, it was found that acute exposure to $PM_{2.5}$ was causally related to cardiovascular effects and mortality *(i.e.*, premature death), and respiratory effects as likely-to-be-causally related. Further, the EPA identified cardiovascular effects and total mortality as causally related to long-term exposure to $PM_{2.5}$ and respiratory effects as likely-to-be-causal; the evidence was suggestive of a causal relationship for reproductive and developmental effects as well as cancer, mutagenicity, and genotoxicity.

The benefits per ton (BPT) of the $PM_{2.5}$ emissions reductions cited earlier in this

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[28] *Integrated Science Assessment for Particulate Matter* (Final Report, 2019). EPA/600/R19/188. U.S. Environmental Protection Agency, Washington, DC. 2019.

preamble for years 2025 and 2030 and at 3 percent and 7 percent discount rates are presented in Table 7 below in 2022 dollars. The BPT of the $PM_{2.5}$ emissions reductions for year 2025, at a 3 percent discount rate translates to a low projection of $417,000 per ton emission reduction, to a high projection of $891,000 per ton emission reduction (in 2022 dollars). Information regarding the process by which these BPTs were calculated is available in the technical support document *Estimating the Benefit per Ton of Reducing Directly-Emitted $PM_{2.5}$, $PM_{2.5}$ Precursors, and Ozone Precursors from 21 Sectors*.[29]

Table 7. Benefits per Ton of $PM_{2.5}$ Reduced

Year	$/ton $PM_{2.5}$ Emission Reductions $2022			
	3 Percent Discount Rate		7 Percent Discount Rate	
	Low	High	Low	High
2025	$417,000	$891,000	$375,000	$803,000
2030	$451,000	$933,000	$405,000	$839,000

Note: The range reported here reflects the use of risk estimates from two alternative long-term exposure PM-mortality studies.[29]

F. What analysis of environmental justice did we conduct?

Executive Order 12898 directs the EPA to identify the populations of concern that are most likely to experience unequal burdens from environmental harms, which are specifically minority populations (people of color), low-income populations, and Indigenous peoples (59 FR 7629; February 16, 1994). Additionally, Executive Order 13985 is intended to advance racial equity and support underserved communities through Federal government actions (86 FR 7009; January 20, 2021). 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."[30] The EPA

[29] *Estimating the Benefit per Ton of Reducing Directly-emitted $PM_{2.5}$, $PM_{2.5}$ Precursors and Ozone Precursors from 21 Sectors*. U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711. 2022. Available at: *https://www.epa.gov/system/files/documents/2021-10/source-apportionment-tsd-oct-2021_0.pdf.*

[30] See *https://www.epa.gov/environmentaljustice.*

further defines fair treatment to mean that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies." In recognizing that people of color and low-income populations often bear an unequal burden of environmental harms and risks, the EPA continues to consider ways of protecting them from adverse public health and environmental effects of air pollution. For purposes of analyzing regulatory impacts, the EPA relies upon its June 2016 "Technical Guidance for Assessing Environmental Justice in Regulatory Analysis,"[31] 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.

The Agency has conducted an analysis of the demographics of the populations living near existing facilities in the EAF population in the U.S. Because this action finalizes standards of performance for new, modified, and reconstructed EAF sources that commence construction after May 16, 2022, the locations of the construction of new EAF facilities are not known. In addition, it is not known which of the existing facilities will be modified or reconstructed in the future. Therefore, the demographic analysis was conducted for the 88 existing EAF facilities as a characterization of the demographics in areas where these facilities are now located.

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

The full results of the demographic analysis can be found in section E, "*What are the environmental justice impacts?,*" of the preamble to the proposed rule (87 FR 29724). The analysis included an assessment of individual demographic groups of the populations living within 5 km and within 50 km of the existing facilities. We then compared the data from the analysis to the national average for each of the demographic groups. The results show that for populations within 5 km of the 87 existing EAF facilities (we identified one additional existing facility since the proposed rule was published for a total of 88 facilities, but the overall results did not change). The percent of the population that is African American is above the national average (17 percent versus 12 percent). The percent of people living below the poverty level is also above the national average (17 percent versus 13 percent). The percent of the population that is Native American, Hispanic or Latino, or Other/Multiracial are below the national averages. The percent of the population over 25 without a high school diploma and the percent of the population in linguistic isolation are similar to the national averages. The results of the analysis of populations within 50 km of the 88 EAF facilities is similar to the 5 km analysis.

The methodology and the results of the demographic analysis for the final rule are presented in a technical report, *Analysis of Demographic Factors for Populations Living Near Electric Arc Furnace Facilities*, available in the docket for this action (Docket ID No. EPA-HQ-OAR-2002-0049).

The EPA expects that the Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed after May16, 2022, will ensure compliance via frequent testing and reduce emissions via a lower opacity limit for melt shops and with the standards at all times (including periods of SSM). The rule will also increase data transparency through electronic reporting. Therefore, effects of emissions on populations in proximity to any future affected sources, including in communities potentially overburdened by pollution, which are often people of color, and low-income and Indigenous communities will be reduced due to compliance with the standards of performance being finalized in this action.

VI. Statutory and Executive Order Reviews

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

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 14094: Modernizing Regulatory Review

This action is not a significant regulatory action as defined in Executive Order 12866, as amended by Executive Order 14094, and was, therefore, not subject to a requirement for Executive Order 12866 review.

B. Paperwork Reduction Act (PRA)

The information collection activities in this final rule have been submitted for approval to OMB under the PRA. The information collection request (ICR) document that the EPA prepared has been assigned the EPA ICR number 1060.21. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here. The information collection requirements are not enforceable until OMB approves them.

These amendments to 40 CFR part 60, subparts AA and AAa to require electronic reporting, and implement editorial and clarifying changes to rule language are estimated to reduce time spent and paperwork for rule. We are promulgating a new subpart for new, modified, or reconstructed facilities that start up after May16, 2022, under 40 CFR part 60, subpart AAb with similar reporting, recordkeeping, and compliance requirements as 40 CFR part 60, subparts AA and AAa.

Respondents/affected entities: EAF and AOD facilities.

Respondent's obligation to respond: Mandatory (40 CFR part 60, subparts AA; AAa; and AAb).

Estimated number of respondents: 90, includes 88 estimated current facilities subject to 40 CFR part 60, subparts AA and AAa, and 3 new facilities that would be subject to 40 CFR part 60, subpart AAb in the 3 years after proposal (May16, 2022).

Frequency of Response: One time.

Total estimated burden: The annual recordkeeping and reporting burden for facilities to comply with all the requirements in the NSPS is estimated to be 57,100 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: The annual recordkeeping and reporting costs for all facilities to comply with all of the requirements in the NSPS is estimated to be $7,400,000 (per year), of which $65,686 (per year) is for this final rule ($60,000 for EPA Method 5 compliance and $696 for electronic reporting), and $7,130,000 for other costs related to continued compliance with the NSPS, including $198,000 for paperwork associated with operation and maintenance requirements. The total rule costs reflect an increase/decrease cost of $450,000 (per year) from the previous ICR that reflects savings due to electronic reporting and an increase to the labor rates.

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. When OMB approves this ICR, the Agency will announce that approval in the *Federal Register* and publish a technical amendment to 40 CFR part 9 to display the OMB control number for the approved information collection activities contained in this 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 will not impose any requirements on the three identified small entities among the approximately 90 EAF facilities (36 companies), because most facilities are likely to be performing regular compliance tests as part of their permit renewal process. Additionally, no facilities are expected to be built by small entities over the next 10 years based on past industry growth and small business starts. The 3 current facilities owned by small businesses were started in 1912, 1968, and 1994, respectively. Further discussion is included in the EIA for this final rule.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. While this action creates an enforceable duty on the private sector, the cost does not exceed $100 million or more.

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. This rule will implement improvements in air quality due to new EAF in all locations of new EAF facilities, including any new EAF which are in proximity to Tribal grounds. It would 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 that are the subject of this rulemaking. Thus, Executive Order 13175 does not apply to this action.

Consistent with the EPA Policy on Consultation and Coordination with Indian Tribes, the EPA consulted with Tribal officials during the development of this action. A copy of the memorandum dated May 17, 2022, sent to Tribal leaders concerning the EAF NSPS is provided in the docket to this rule.

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 it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. The EPA does not believe there are disproportionate risks to children because the new subpart AAb lowers emissions from the melt shop during melting and refining, which will benefit children's health; and other changes made to all subparts, AA, AAa, and AAb, increase compliance with emission limits, which also benefits children's health. However, EPA's Policy on Children's Health applies to this action. Information on how the Policy was applied is available under "Children's Environmental Health" in the Supplementary Information section of this preamble.

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 regulatory action under Executive Order 12866.

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 EAF NSPS through the Enhanced National Standards Systems Network Database managed by the American National Standards Institute (ANSI). We also contacted voluntary consensus standards (VCS) organizations and accessed and searched their databases. We conducted searches for EPA Methods 1, 2, 3, 3A, 3B, 4, 5, 5D, and 22 of 40 CFR part 60, appendix A. During the EPA's VCS search, if the title or abstract (if provided) of the VCS described technical sampling and analytical procedures that are similar to the EPA's reference method, the EPA reviewed it as a potential equivalent method. We reviewed all potential standards to determine the practicality of the VCS for this rule. This review requires significant method validation data that meet the requirements of EPA Method 301 for accepting alternative methods or scientific, engineering and policy equivalence to procedures in the EPA reference methods.

The EPA may reconsider determinations of impracticality when additional information is available for a particular VCS. No applicable VCS were identified for EPA Methods 5D and 22.

The EPA is incorporating by reference the VCS ANSI/ASME PTC 19.10–1981, "Flue and Exhaust Gas Analyses," to provide that the manual procedures (but not instrumental procedures) of VCS ANSI/ASME PTC 19.10-1981—Part 10 may be used as an alternative to EPA Method 3B. The manual procedures (but not instrumental procedures) of VCS ANSI/ASME PTC 19.10-1981—Part 10 may be used as an alternative to EPA Method 3B for measuring the oxygen or carbon dioxide content of the exhaust gas. This standard is acceptable as an alternative to EPA Method 3B and is available from ASME at *www.asme.org*; by mail at Three Park Avenue, New York, NY 10016-5990; or by telephone at (800) 843-2763. This method determines quantitatively the gaseous constituents of exhausts resulting from stationary combustion sources. The gases covered in ANSI/ASME PTC 19.10–1981 are oxygen, carbon dioxide, carbon monoxide, nitrogen, sulfur dioxide, sulfur trioxide, nitric oxide, nitrogen dioxide, hydrogen sulfide, and hydrocarbons. However, the use in this rule is only applicable to oxygen and carbon dioxide.

In the final rule, the EPA is incorporating by reference the VCS ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, which is an instrumental method to determine plume opacity in the outdoor ambient environment as an alternative to visual measurements made by certified smoke readers in accordance with EPA Method 9. The concept of ASTM D7520-16, also known as the Digital Camera Opacity Technique or DCOT, is a test protocol to determine the opacity of visible emissions using a digital camera. It was based on previous method development using digital still cameras and field testing of those methods. The purpose of ASTM D7520-16 is to set a minimum level of performance for products that use DCOT to determine plume opacity in ambient environments. The DCOT method is an acceptable alternative to EPA Method 9 with the following caveats:

- During the DCOT certification procedure outlined in Section 9.2 of ASTM D7520-16, the facility or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds or a sparse tree stand).
- The facility must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16.
- The facility must follow the recordkeeping procedures outlined in 40 CFR 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.
- The facility or the DCOT vendor must have a minimum of 4 independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15 percent opacity of any one anyone reading, and the average error must not exceed 7.5 percent opacity.
- This approval does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 is on the facility, DCOT operator, and DCOT vendor. This method describes procedures to determine the opacity of a plume, using digital imagery and associated hardware and software, where opacity is caused by PM emitted from a stationary point source in the outdoor ambient environment. The opacity of emissions is determined by the application of a DCOT that consists of a digital still camera, analysis software, and the output function's content to obtain and interpret digital images to determine and report plume opacity. The ASTM D7520-16 document is available from ASTM at *www.astm.org* or l100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, telephone number: (610) 832-9500, fax number: (610) 8329555 at *service@astm.org*.

The EPA is finalizing the use of the guidance document, *Fabric Filter Bag Leak Detection Guidance*, EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, September 1997. This document provides guidance on the use of triboelectric monitors as fabric filter bag leak detectors. The document includes fabric filter and monitoring system descriptions; guidance on monitor selection, installation, setup, adjustment, and operation; and quality assurance procedures. The document is available at *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF*.

Additional information for the VCS search and determinations can be found in the three memoranda titled *Voluntary Consensus Standard Results for Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974, and On or Before August 17, 1983; Voluntary Consensus Standard Results for Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983, and On or Before May 16, 2022*; and *Voluntary Consensus Standard Results for Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After May16, 2022,* available in the docket for this final rule.

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

Executive Order 12898 (59 FR 7629; February 16, 1994) directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations (people of color and/or Indigenous peoples) and low-income populations.

The EPA believes that the human health and environmental conditions that exist prior to this action do not result in disproportionate and adverse effects on people of color, low-income populations, and/or indigenous peoples if a modified or reconstructed EAF facility becomes

subject to the final rule for 40 CFR part 60, subpart AAb, considering the demographics analysis for the existing EAF facilities described in section V.F of this preamble. However, it is unknown where new EAF facilities will be located so it is not possible to predict the impacts of these facilities on people of color, low-income populations, and/or indigenous peoples.

The EPA believes that this action is not likely to result in new disproportionate and adverse effects on people of color, low-income populations and/or indigenous peoples. The impacts of these final rules are beneficial to all demographic groups, and include requirements to clarify current rules in 40 CFR part 60, subparts AA, AAa and, for new sources built after publication of this final rule (in 40 CFR part 60, subpart AAb), to ensure compliance via frequent testing, to meet a lower opacity limit for melt shops during melting and refining, to meet a baghouse emissions limit as a facility-wide total in lb/ton, and to meet all the promulgated standards at all times, including periods of SSM.

The information supporting this Executive Order review is contained in section V.F of this preamble and in a technical report, *Analysis of Demographic Factors For Populations Living Near Steel Plants Using Electric Arc Furnaces*, located in the docket for this rule. Because the EPA does not know where new facilities will be located that will become subject to this new 40 CFR part 60, subpart AAb, a demographic analysis was performed on the existing EAF/AOD population, which could become subject to 40 CFR part 60, subpart AAb if a modification or reconstruction increases emissions.

K. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a ‘‘major rule’’ as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 60

Environmental protection, Administrative practice and procedures, Air pollution control, Incorporation by reference, Reporting and recordkeeping requirements.

Michael S. Regan,

Administrator.

For the reasons set forth in the preamble, the EPA amends 40 CFR part 60 as follows:

PART 60 – STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

1. The authority citation for part 60 continues to read as follows:

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

Subpart A – General Provisions.

2. Section 60.17 is amended by revising paragraphs (g)(14), (h)(206), and (j)(2) to read as follows:

§60.17 Incorporation by reference.

* * * * *

(g) * * *

(14) ASME/ANSI PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], (Issued August 31, 1981), IBR approved for §§ 60.56c(b); 60.63(f); 60.106(e); 60.104a(d), (h), (i), and (j); 60.105a(b), (d), (f), and (g); 60.106a(a); 60.107a(a), (c), and (d); 60.275(e);60.275a(e); 60.275b(e);tables 1 and 3 to subpart EEEE; tables 2 and 4 to subpart FFFF; table 2 to subpart JJJJ; §§ 60.285a(f); 60.396(a); 60.2145(s) and (t); 60.2710(s) and (t); 60.2730(q); 60.4415(a);60.4900(b); 60.5220(b); tables 1 and 2 to subpart LLLL; tables 2 and 3 to subpart MMMM; §§ 60.5406(c); 60.5406a(c); 60.5407a(g); 60.5413(b); 60.5413a(b); and (d).

* * * * *

(h) * * *

(206) ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, approved April 1, 2016; IBR approved for §§60.271(k); 60.272(a) and (b); 60.273(c) and (d); 60.274(h); 60.275(e); 60.276(c);60.271a; 60.272a(a)and (b); 60.273a(c) and (d); 60.274a(h); 60.275a(e); 60.276a(f); 60.271b; 60.272b(a) and (b); 60.273b(c) and (d); 60.274b(h); 60.275b(e); 60.276b(f); 60.374a(d).

* * * * *

(j) * * *

(2) EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF; IBR approved for §§ 60.273(e); 60.273a(e); 60.273b(e); 60.373a(b); 60.2145(r); 60.2710(r); 60.4905(b); 60.5225(b).

* * * * *

Subpart AA– Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974, and On or Before August 17, 1983

3. Section 60.270 is amended by revising paragraph (b) to read as follows:

§60.270 Applicability and designation of affected facility.

* * * * *

(b) The provisions of this subpart apply to each affected facility identified in paragraph (a) of this section that commenced construction, modification, or reconstruction after October 21, 1974, and on or before August 17, 1983, where a modification is any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which this standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which this standard applies) into the atmosphere not previously emitted.

4. Section 60.271 is amended by:

a. Revising paragraphs (a), (d) through (f), (i) through (k), (m), and (n); and

b. Adding new paragraphs (p) through (r).

The revisions and additions read as follows:

§60.271 Definitions.

* * * * *

(a) *Electric arc furnace (EAF)* means a furnace that produces molten steel and heats the charge materials with electricity using carbon electrodes. Furnaces that continuously feed direct-

reduced iron ore pellets as the primary source of iron are not affected facilities within the scope of this definition.

* * * * *

(d) *Capture system* means the equipment (including ducts, hoods, fans, dampers, etc.) used to capture particulate matter generated by the operation of an EAF and transport captured particulate matter to the air pollution control device.

(e) *Charge* means the addition of iron and steel scrap or other materials into the shell of an electric arc furnace.

(f) *Charging period* means the time period when iron and steel scrap or other materials are added into the top of an EAF until the melting and refining period commences.

* * * * *

(i) *Melting and refining* means that phase of the steel production cycle when charge material is melted and undesirable elements are removed from the metal.

(j) *Melting and refining period* means the time period commencing at the initial energizing of the electrode to begin the melting process and ending at the initiation of the tapping period, excluding any intermediate times when the electrodes are not energized as part of the melting process.

(k) *Shop opacity* means the arithmetic average of 24 or more opacity observations of any EAF emissions emanating from, and not within, the shop, taken in accordance with EPA Method 9 of appendix A of this part. Alternatively, ASTM D7520-16 (incorporated by reference, see §60.17), may be used with the following five conditions: (1) During the digital camera opacity technique (DCOT) certification procedure outlined in Section 9.2 of ASTM D7520-16 (incorporated by reference, see §60.17), the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand);

(2) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16 (incorporated by reference, see §60.17);

(3) The owner or operator must follow the recordkeeping procedures outlined in §60.7(f) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination;

(4) The owner or operator or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15 percent opacity of anyone reading and the average error must not exceed 7.5 percent opacity;

(5) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 (incorporated by reference, see §60.17) and these requirements is on the facility, DCOT operator, and DCOT vendor.

* * * * *

(m) *Shop* means the building that houses one or more EAF's and serves as the point from which compliance with §60.272(a)(3), “Standard for Particulate Matter,” is measured.

(n) *Direct shell evacuation system* means any system that creates and maintains a negative pressure within the EAF shell during melting and refining, and transports emissions to the control device.

* * * * *

(p) *Damper* means any device used to open, close or throttle a DEC system or hood designed to capture emissions from an EAF and route them to the associated control device(s). It does not include isolation dampers used to isolate a fan or baghouse compartment for repair or

cleaning, or dampers controlling collection of emissions from equipment other than an EAF.

(q) *Negative-pressure fabric filter* means a fabric filter with the fans on the downstream side of the filter bags.

(r) *Positive-pressure fabric filter* means a fabric filter with the fans on the upstream side of the filter bags.

5. Section 60.272 is amended by revising paragraphs (a)(2), (a)(3) introductory text, and (b) to read as follows:

§60.272 Standard for particulate matter.

(a) * * *

(2) Exit from a control device and exhibit three percent opacity or greater, as measured in accordance with EPA Method 9 of appendix A of this part, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271.

(3) Exit from a shop and, due solely to operations of any EAF(s), exhibit 6 percent opacity or greater, as measured in accordance with EPA Method 9 of appendix A of this part, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271. Shop opacity shall be recorded for any point(s) where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of visible emissions, only one observation of shop opacity will be required. In this case, the shop opacity observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident, except:

* * * * *

(b) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from dust-handling equipment any gases which exhibit 10

percent opacity or greater, as measured in accordance with EPA Method 9 of appendix A of this part, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271.

6. Section 60.273 is amended by:

a. Revising paragraphs (c), (d), (e) introductory text and (e)(3);

b. In paragraph (e)(4) introductory text, remove the text "the U.S. Environmental Protection Agency guidance document "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015)" and add, in its place, the text "EPA-454/R-98-015, Fabric Filter Bag Leak Detection Guidance (incorporated by reference, see §60.17)";

c. Revising paragraphs (e)(6)(ii), and (7), (f) introductory text, and (f)(1) and (5);

d. Redesignating paragraph (f)(6) as paragraph (f)(7);

e. Adding new paragraph (f)(6); and

f. Revising paragraph (g).

The revisions and addition read as follows:

§60.273 Emission monitoring.

* * * * *

(c) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the control device(s) is not required on any modular, multi-stack, negative-pressure or positive-pressure fabric filter or on any single-stack fabric filter if observations of the opacity of the visible emissions from the control device are performed by a certified visible emission observer and the owner installs and operates a bag leak detection system according to paragraph (e) of this section whenever the control device is being used to remove particulate matter from the EAF. Visible emission observations shall be conducted at least once per day of the control device for at least three 6-minute periods when the furnace is operating in the melting and refining period. All visible emissions observations shall be conducted in accordance with EPA Method 9 of appendix A to this part, or, as an alternative,

according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271. If visible emissions occur from more than one point, the opacity shall be recorded for any points where visible emissions are observed. Where it is possible to determine that a number of visible emission points relate to only one incident of the visible emission, only one set of three 6-minute observations will be required. In that case, the EPA Method 9 observations must be made for the point of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in §60.272(a)(2).

(d) A furnace static pressure monitoring device is not required on any EAF equipped with a DEC system if observations of shop opacity are performed by a certified visible emission observer as follows:

(1) At least once per day when the furnace is operating.

(2) No less than once per week, commencing from the tap of one EAF heat cycle to the tap of the following heat cycle. A melt shop with more than one EAF shall conduct these readings while both EAFs are in operation. Both EAFs are not required to be on the same schedule for tapping.

(3) Shop opacity shall be determined as the arithmetic average of 24 or more consecutive 15-second opacity observations of emissions from the shop taken in accordance with EPA Method 9, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271. Shop opacity shall be recorded for any point(s) where visible emissions are observed in proximity to an affected EAF. Where it is possible to determine that a number of visible emission points relate to only one incident of visible emissions, only one observation of shop opacity will be required. In this case, the shop opacity observations must be made for the point of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident.

(e) A bag leak detection system must be installed on all single-stack fabric filters and operated whenever the control device is being used to remove particulate matter from the EAF if the owner or operator elects not to install and operate a continuous opacity monitoring system as provided for under paragraph (c) of this section. In addition, the owner or operator shall meet the visible emissions observation requirements in paragraph (c) of this section. The bag leak detection system must meet the specifications and requirements of paragraphs (e)(1) through (8) of this section.

* * * * *

(3) The bag leak detection system must be equipped with an alarm system that will activate when an increase in relative particulate loading is detected over the alarm set point established according to paragraph (e)(4) of this section, and the alarm must be located such that it can be identified by the appropriate plant personnel.

* * * * *

(6) * * *

(ii) If opacities greater than zero percent are observed over four consecutive 15-second observations during the daily opacity observations required under paragraph (c) of this section and the alarm on the bag leak detection system alarm is not activated, the owner or operator shall lower the alarm set point on the bag leak detection system to a point where the alarm would have been activated during the period when the opacity observations were made.

(7) For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detection sensor must be installed downstream of the baghouse or upstream of any wet scrubber.

* * * * *

(f) For each bag leak detection system installed according to paragraph (e) of this section, the owner or operator shall initiate procedures to determine the cause of all alarms within 1 hour of an alarm. The cause of the alarm must be alleviated within 24 hours of the time the alarm

occurred by taking whatever response action(s) are necessary. Response actions may include, but are not limited to the following:

(1) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may have caused an increase in particulate emissions;

* * * * *

(5) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system;

(6) Establishing to the extent acceptable by the delegated authority that the alarm was a false alarm and not caused by a bag leak or other malfunction that could reasonably result in excess particulate emissions; or

*****

(g) In approving the site-specific monitoring plan required in paragraph (e)(4) of this section, the Administrator or delegated authority may allow owners or operators more than 24 hours to alleviate specific conditions that cause an alarm if the owner or operator identifies the condition that could lead to an alarm in the monitoring plan, adequately explains why it is not feasible to alleviate the condition within 24 hours of the time the alarm occurred, and demonstrates that the requested additional time will ensure alleviation of the condition as expeditiously as practicable.

7. Section 60.274 is amended by revising paragraphs (b) through (g), and (i) to read as follows:

§60.274 Monitoring of operations.

* * * * *

(b) Except as provided under paragraph (d) of this section, the owner or operator subject to the provisions of this subpart shall:

(1) Monitor and record on a continuous basis the rolling 15-minute average furnace static pressure (if a DEC system is in use, and a furnace static pressure gauge is installed according to

paragraph (f) of this section) and either:

(i) Install, calibrate, and maintain a monitoring device that continuously records the capture system fan motor amperes and damper position(s);

(ii) Install, calibrate, and maintain a monitoring device that continuously records on a rolling 15-minute average basis either the volumetric flow rate through each separately ducted hood; or

(iii) Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and continuously record damper position(s).

(2) The volumetric flow monitoring device(s) may be installed in any appropriate location in the capture system such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of ±10 percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The Administrator may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to EPA Methods 1 and 2 of appendix A of this part.

(3) Parameters monitored pursuant to this paragraph, excluding damper position, shall be recorded on a rolling averaging period not to exceed 15 minutes.

(c) When the owner or operator of an affected facility is required to demonstrate compliance with the standards under §60.272(a)(3) and at any other time that the Administrator may require (under section 114 of the CAA, as amended), the owner or operator shall determine during periods in which a hood is operated for the purpose of capturing emissions from the affected facility subject to paragraph (b) of this section, either:

(1) Monitor and record the fan motor amperes at each damper position, and damper position consistent with paragraph (i)(5) of this section;

(2) install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or

(3) install, calibrate, and maintain a monitoring device that continuously records the

volumetric flow rate at the control device inlet and monitor and record the damper position consistent with paragraph (i)(5) of this section.

(4) Parameters monitored pursuant to this paragraph, excluding damper position, shall be recorded on a rolling averaging period not to exceed 15 minutes.

(5) The owner or operator may petition the Administrator or delegated authority for reestablishment of these parameters whenever the owner or operator can demonstrate to the Administrator's or delegated authority's satisfaction that the EAF operating conditions upon which the parameters were previously established are no longer applicable. The values of the parameters as determined during the most recent demonstration of compliance shall be the appropriate operational range or control set point throughout each applicable period. Operation at values beyond the accepted operational range or control set point may be subject to the requirements of §60.276(a).

(d) The owner or operator may petition the Administrator or delegated authority to approve any alternative method that will provide a continuous record of operation of each emission capture system.

(e) The owner or operator shall perform monthly operational status inspections of the equipment that is important to the performance of the total capture system (*i.e.*, pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (*e.g.*, presence of hole in ductwork or hoods, flow constrictions caused by dents or excess accumulations of dust in ductwork, and fan erosion) and building inspections to ensure that the building does not have any holes or other openings for particulate matter laden air to escape. Any deficiencies that are determined by the operator to materially impact the efficacy of the capture system shall be noted and proper maintenance performed.

(f) Except as provided for under §60.273(d), where emissions during any phase of the heat time are controlled by use of a direct shell evacuation system, the owner or operator shall install, calibrate, and maintain a monitoring device that continuously records the pressure in the

free space inside the EAF. The pressure shall be recorded as no greater than 15-minute integrated block averages. The monitoring device may be installed in any appropriate location in the EAF or DEC duct prior to the introduction of ambient air such that reproducible results will be obtained. The pressure monitoring device shall have an accuracy of ±5 mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(g) Except as provided for under §60.273(d), when the owner or operator of an EAF is required to demonstrate compliance with the standard under §60.272(a)(3) and at any other time the Administrator may require (under section 114 of the Act, as amended), the pressure in the free space inside the furnace shall be determined during the melting and refining period(s) using the monitoring device under paragraph (f) of this section. The owner or operator may petition the Administrator or delegated authority for reestablishment of the 15-minute integrated average pressure whenever the owner or operator can demonstrate to the Administrator's or delegated authority's satisfaction that the EAF operating conditions upon which the pressures were previously established are no longer applicable. The pressure range or control setting during the most recent demonstration of compliance shall be maintained at all times the EAF is operating in a melting and refining period. Continuous operation at pressures higher than the operational range or control setting may be considered by the Administrator or delegated authority to be unacceptable operation and maintenance of the affected facility.

* * * * *

(i) During any performance test required under § 60.8, and for any report thereof required by § 60.276(c) of this subpart or to determine compliance with § 60.272(a)(3) of this subpart, the owner or operator shall monitor the following information for all heats covered by the test:

(1) Charge weights and materials, and tap weights and materials;

(2) Heat times, including start and stop times, and a log of process operation, including periods of no operation during testing and, if a furnace static pressure monitoring device is operated pursuant to paragraph (f) of this section, the pressure inside the furnace when DEC

systems are used;

(3) Control device operation log;

(4) Continuous opacity monitor or EPA Method 9 data, or, as an alternative to EPA Method 9, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271;

(5) All damper positions, no less frequently than performed in the latest melt shop opacity compliance test for a full heat, if selected as a method to demonstrate compliance under paragraph (b) of this section;

(6) Fan motor amperes at each damper position, if selected as a method to demonstrate compliance under paragraph (b) of this section;

(7) Volumetric air flow rate through each separately ducted hood, if selected as a method to demonstrate compliance under paragraph (b) of this section; and

(8) Static pressure at each separately ducted hood, if selected as a method to demonstrate compliance under paragraph (b) of this section.

(9) Parameters monitored pursuant to paragraphs (i)(6)-(8) of this section shall be recorded on a rolling averaging period not to exceed 15 minutes.

8. Section 60.275 is amended by:

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

b. Adding paragraph (b)(3);

c. Revising paragraphs (c), (e)(1), (3), and (4);

d. Removing paragraph (g);

e. Redesignating existing paragraphs (h) through (j) as paragraphs (g) through (i), respectively; and

f. Revising newly redesignated paragraphs (g) introductory text, (g)(3), and (h).

The revisions and additions read as follows:

§60.275 Test methods and procedures.

(a) During performance tests required in §60.8, the owner or operator shall not add gaseous diluent to the effluent gas after the fabric filter in any pressurized fabric collector, unless the amount of dilution is separately determined and considered in the determination of emissions.

(b) * * *

(2) Use a method that is acceptable to the Administrator or delegated authority and that compensates for the emissions from the facilities not subject to the provisions of this subpart.

(3) Any combination of the criteria of paragraphs (b)(1) and (b)(2) of this section.

(c) When emissions from any EAF(s) are combined with emissions from facilities not subject to the provisions of this subpart, compliance with §60.272(a)(3) will be based on emissions from only the affected facility(ies). The owner or operator may use operational knowledge to determine the facilities that are the sources, in whole or in part, of any emissions observed in demonstrations of compliance with §60.272(a)(3).

* * * * *

(e) * * *

(1) EPA Method 5 (and referenced EPA Methods 1, 2, 3, 3A, 3B, and 4) shall be used for negative-pressure fabric filters and other types of control devices and EPA Method 5D (and referenced EPA Method 5) shall be used for positive-pressure fabric filters to determine the particulate matter concentration and, if applicable, the volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least 4 hours and 4.5 dscm (160 dscf) and, when a single EAF is sampled, the sampling time shall include an integral number of heats. The manual portions only and not the instrumental portion of the voluntary consensus standard ANSI/ ASME PTC 19.10-1981 (incorporated by reference, see § 60.17) is an acceptable alternative to EPA Methods 3, 3A, and 3B.

* * * * *

(3) EPA Method 9 or, as an alternative, ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271, and the procedures of §60.11

shall be used to determine opacity.

(4) To demonstrate compliance with §60.272(a)(1), (2), and (3), the EPA Method 9 test runs shall be conducted concurrently with the particulate matter test runs, unless inclement weather interferes.

* * * * *

(g) Where emissions from any EAF(s) are combined with emissions from facilities not subject to the provisions of this subpart, the owner or operator may use any of the following procedures for demonstrating compliance with §60.272(a)(3), except if the combined emissions are controlled by a common capture system and control device, in which case the owner or operator may use any of the following procedures during an opacity performance test and during shop opacity observations:

* * * * *

(3) Any combination of the criteria of paragraphs (g)(1) and (2) of this section.

(h) If visible emissions observations are made in lieu of using a continuous opacity monitoring system, as allowed for by §60.273(c), visible emission observations shall be conducted at least once per day for at least three 6-minute periods when the furnace is operating in the melting and refining period. All visible emissions observations shall be conducted in accordance with EPA Method 9. If visible emissions occur from more than one point, the opacity shall be recorded for any points where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emission, only one set of three 6-minute observations will be required. In that case, the EPA Method 9 observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in §60.272(a).

*****

9. Section 60.276 is amended by:

a. Revising paragraphs (a), (b), (c) introductory text, (c)(3), (4), (6)(iv), (10), (d), and (e)(3); and

b. Adding paragraphs (f) through (k).

The revisions and additions read as follows:

§60.276 Recordkeeping and reporting requirements.

(a) Continuous operation at a furnace static pressure that exceeds the operational range or control setting under §60.274(g), for owners and operators that elect to install a furnace static pressure monitoring device under §60.274(f) or operation at flow rates lower than those established under §60.274(c) may be considered by the Administrator or delegated authority to be unacceptable operation and maintenance of the affected facility. Operation at such values shall be reported to the Administrator or delegated authority semiannually.

(b) When the owner or operator of an EAF is required to demonstrate compliance with the standard under §60.275(b)(2) or a combination of (b)(1) and (b)(2), the owner or operator shall provide notice to the Administrator or delegated authority of the procedure(s) that will be used to determine compliance. Notification of the procedure(s) to be used must be postmarked at least 30 days prior to the performance test.

(c) For the purpose of this subpart, the owner or operator shall conduct the demonstration of compliance with §60.272(a) of this subpart and furnish the Administrator or delegated authority with a written report of the results of the test. This report shall include the following information:

* * * * *

(3) Make and model of the control device, and continuous opacity monitoring equipment, if applicable;

(4) Flow diagram of process and emission capture system including other equipment or process(es) ducted to the same control device;

* * * * *

(6) * * *

(iv) Continuous opacity monitor or EPA Method 9 data, or, as an alternative to EPA Method 9, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271.

* * * * *

(10) Test observers from any outside agency;

* * * * *

(d) The owner or operator shall maintain records of all shop opacity observations made in accordance with §60.273(d). All shop opacity observations in excess of the emission limit specified in §60.272(a)(3) of this subpart shall indicate a period of excess emissions, and shall be reported to the Administrator or delegated authority semi-annually, according to §60.7(c) and submitted according to paragraph (h) of this section. In addition to the information required at §60.7(c), the report shall include the following information:

(1) The company name and address of the affected facility.

(2) An identification of each affected facility being included in the report.

(3) Beginning and ending dates of the reporting period.

(4) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(e) * * *

(3) An identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 24 hours of the alarm.

(f) Records of the measurements required in §60.274 must be retained for at least 5 years following the date of the measurement.

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

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

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

(3) Confidential business information (CBI). Do not use CEDRI to submit information you claim as CBI. Anything submitted using CEDRI cannot later be claimed CBI. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim for some of the information submitted under paragraph (g)(1) or (2) of this section, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated using the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. The preferred method to submit 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 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, submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in paragraphs (g)(1) and (2) of this section. All CBI claims must be asserted at the time of submission. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available.

(h) You must submit a report of excess emissions and monitoring systems performance report according to §60.7(c) to the Administrator semiannually. Submit all reports to the EPA via CEDRI, which can be accessed through the EPA's CDX (https://cdx.epa.gov/). The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as CBI. Anything submitted using CEDRI cannot later be claimed CBI. You must use the appropriate electronic report template on the CEDRI website (https://www.epa.gov/electronic-reporting-air-emissions/cedri) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim, follow paragraph (g)(3) of this section except send to the attention of the Electric Arc Furnace Sector Lead. The same file with the CBI omitted must be submitted to

the EPA via the EPA's CDX as described earlier in this paragraph (h). All CBI claims must be asserted at the time of submission. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available.

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

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

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

(3) The outage may be planned or unplanned.

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

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

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

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

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting

requirement at the time of the notification, the date you reported.

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

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

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

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

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

(3) You must provide to the Administrator:

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

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

(iii) A description of measures taken or to be taken to minimize the delay in reporting;

and

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

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

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

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

Subpart AAa – Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarbonization Vessels Constructed After August 17, 1983 and On or Before May 16, 2022

10. Section 60.270a is amended by revising paragraph (b) to read as follows:

§60.270a Applicability and designation of affected facility.

* * * * *

(b) The provisions of this subpart apply to each affected facility identified in paragraph (a) of this section that commences construction, modification, or reconstruction after August 17, 1983 and on or before May 16, 2022, where a modification is any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which this standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which this standard applies) into the atmosphere not previously emitted.

11. Section 60.271a is amended by:

a. Revising definitions for “capture system” and “charge”;

b. Adding in alphabetical order the definition for “Charging period” and “Damper”;

c. Revising the definitions for “Direct-shell evacuation control system (DEC system),” “Dust-handling system”, “Electric arc furnace (EAF)”, “Heat cycle”, “Meltdown and refining period”, “Refining”, “Shop”, and “Shop opacity”.

The revisions and additions read as follows:

§60.271a Definitions.

* * * * *

Capture system means the equipment (including ducts, hoods, fans, dampers, etc.) used to capture particulate matter generated by the operation of an electric arc furnace or AOD vessel and transport captured particulate matter to the air pollution control device.

Charge means the addition of iron and steel scrap or other materials into the shell of an electric arc furnace or the addition of molten steel or other materials into the top of an AOD vessel.

Charging period means the time period when iron and steel scrap or other materials are added into the top of an electric arc furnace until the melting and refining period commences.

* * * * *

Damper means any device used to open, close or throttle a DEC system or hood designed to capture emissions from an EAF or AOD vessel and route them to the associated control device(s). It does not include isolation dampers used to isolate a fan or baghouse compartment for repair or cleaning, or dampers controlling collection of emissions from equipment other than an EAF or AOD vessel.

Direct-shell evacuation control system (DEC system) means a system that creates and maintains a negative pressure within the electric arc furnace shell during melting and refining, and transports emissions to the control device.

Dust-handling system means equipment used to handle particulate matter collected by the

control device for an electric arc furnace or AOD vessel subject to this subpart. For the purposes of this subpart, the dust-handling system shall consist of the control device dust hoppers, the dust-conveying equipment, any silo, dust storage equipment, the dust-treating equipment (*e.g.*, pug mill, pelletizer), dust transfer equipment (including, but not limited to transfers from a silo to a truck or rail car), and any secondary control devices used with the dust transfer equipment.

Electric arc furnace (EAF) means a furnace that produces molten steel and heats the charge materials with electricity using carbon electrodes. For the purposes of this subpart, an EAF shall consist of the furnace shell and roof and the transformer. Furnaces that continuously feed direct-reduced iron ore pellets as the primary source of iron are not affected facilities within the scope of this definition.

Heat cycle means the period beginning when scrap is charged to an EAF shell and ending when the EAF tap is completed or beginning when molten steel is charged to an AOD vessel and ending when the AOD vessel tap is completed.

Melting and refining period means the time period commencing at the initial energizing of the electrode to begin the melting process and ending at the initiation of the tapping period, excluding any intermediate times when the electrodes are not energized as part of the melting process.

* * * * *

Refining means that phase of the steel production cycle during which impurities are removed from the molten steel and alloys are added to reach the final metal chemistry.

Shop means the building that houses one or more EAF's or AOD vessels and serves as the point from which compliance with §60.272a(a)(3), “Standard for Particulate Matter,” is measured.

Shop opacity means the arithmetic average of 24 observations of the opacity of any EAF or AOD emissions emanating from, and not within, the shop, taken in accordance with EPA Method 9 of appendix A of this part. Alternatively, ASTM D7520-16 (incorporated by reference,

see §60.17), may be used with the following five conditions:

(1) During the digital camera opacity technique (DCOT) certification procedure outlined in Section 9.2 of ASTM D7520-16 (incorporated by reference, see §60.17), the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand);

(2) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16 (incorporated by reference, see §60.17);

(3) The owner or operator must follow the recordkeeping procedures outlined in §60.7(f) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination;

(4) The owner or operator or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15 percent opacity of anyone reading and the average error must not exceed 7.5 percent opacity;

(5) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 (incorporated by reference, see §60.17) and these requirements is on the facility, DCOT operator, and DCOT vendor.

* * * * *

12. Revise § 60.272a to read as follows:

§60.272a Standard for particulate matter.

(a) On and after the date of which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from an EAF or an AOD vessel any gases which:

(1) Exit from a control device and contain particulate matter in excess of 12 mg/dscm (0.0052 gr/dscf);

(2) Exit from a control device and exhibit 3 percent opacity or greater, as measured in accordance with EPA Method 9 of appendix A of this part, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271; and

(3) Exit from a shop and, due solely to the operations of any affected EAF(s) or AOD vessel(s), exhibit 6 percent opacity or greater, as measured in accordance with EPA Method 9 of appendix A of this part, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271. Shop opacity shall be recorded for any point(s) where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of visible emissions, only one observation of shop opacity will be required. In this case, the shop opacity observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident.

(b) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from the dust-handling system any gases that exhibit 10 percent opacity or greater, as measured in accordance with EPA Method 9 of appendix A of this part, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271.

13. Section 60.273a is amended by:

a. Revising paragraphs (c), (d), (e) introductory text, (e)(3);

b. In paragraph (e)(4) introductory text, remove the text “the U.S. Environmental Protection Agency guidance document “Fabric Filter Bag Leak Detection Guidance” (EPA-454/R-98-015)” and add, in its place, the text “EPA-454/R-98-015, Fabric Filter Bag Leak Detection Guidance (incorporated by reference, see §60.17)”;

c. Revising paragraphs (e)(6)(i) and (ii), (e)(7), (f) introductory text, (f)(1) and(5);

d. Redesignating paragraph (f)(6) as paragraph (f)(7);

e. Adding new paragraph (f)(6); and

f. Revising paragraph (g).

The revisions and addition read as follows:

§60.273a Emission monitoring.

* * * * *

(c) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the control device(s) is not required on any modular, multi-stack, negative-pressure or positive-pressure fabric filter or on any single-stack fabric filter if observations of the opacity of the visible emissions from the control device are performed by a certified visible emission observer and the owner installs and operates a bag leak detection system according to paragraph (e) of this section whenever the control device is being used to remove particulate matter from the EAF or AOD. Visible emission observations shall be conducted at least once per day of the control device for at least three 6-minute periods when the furnace is operating in the melting and refining period. All visible emissions observations shall be conducted in accordance with EPA Method 9, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271. If visible emissions occur from more than one point, the opacity shall be recorded for any points where visible emissions are observed. Where it is possible to determine that a number of visible emission points relate to only one incident of the visible emission, only one set of three 6-minute observations will be required. In that case, the EPA Method 9

observations must be made for the point of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in §60.272a(a)(2).

(d) A furnace static pressure monitoring device is not required on any EAF equipped with a DEC system if observations of shop opacity are performed by a certified visible emission observer as follows:

(1) At least once per day when the furnace is operating.

(2) No less than once per week, commencing from the tap of one EAF heat cycle to the tap of the following heat cycle. A melt shop with more than one EAF shall conduct these readings while both EAFs are in operation. Both EAFs are not required to be on the same schedule for tapping.

(3) Shop opacity shall be determined as the arithmetic average of 24 consecutive 15-second opacity observations of emissions from the shop taken in accordance with EPA Method 9, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271. Shop opacity shall be recorded for any point(s) where visible emissions are observed. Where it is possible to determine that a number of visible emission points relate to only one incident of visible emissions, only one observation of shop opacity will be required. In this case, the shop opacity observations must be made for the point of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident.

(e) A bag leak detection system must be installed on all single-stack fabric filters and operated whenever the control device is being used to remove particulate matter from the EAF or AOD vessel if the owner or operator elects not to install and operate a continuous opacity monitoring system as provided for under paragraph (c) of this section. In addition, the owner or operator shall meet the visible emissions observation requirements in paragraph (c) of this section. The bag leak detection system must meet the specifications and requirements of

paragraphs (e)(1) through (8) of this section.

* * *

(3) The bag leak detection system must be equipped with an alarm system that will activate when an increase in relative particulate loading is detected over the alarm set point established according to paragraph (e)(4) of this section, and the alarm must be located such that it can be identified by the appropriate plant personnel.

* * *

(6) * * *

(i) Once per quarter, the owner or operator may adjust the sensitivity of the bag leak detection system to account for seasonal effects including temperature and humidity according to the procedures identified in the site-specific monitoring plan required under paragraph (e)(4) of this section.

(ii) If opacities greater than zero percent are observed over four consecutive 15-second observations during the daily opacity observations required under paragraph (c) of this section and the alarm on the bag leak detection system alarm is not activated, the owner or operator shall lower the alarm set point on the bag leak detection system to a point where the alarm would have been activated during the period when the opacity observations were made.

(7) For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detection sensor must be installed downstream of the baghouse or upstream of any wet scrubber.

* * *

(f) For each bag leak detection system installed according to paragraph (e) of this section, the owner or operator shall initiate procedures to determine the cause of all alarms within 1 hour of an alarm. The cause of the alarm must be alleviated within 24 hours of the time the alarm occurred by taking whatever response action(s) are necessary. Response actions may include, but are not limited to, the following:

(1) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may have caused an increase in particulate emissions;

* * *

(5) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system;

(6) Establishing to the extent acceptable by the delegated authority that the alarm was a false alarm and not caused by a bag leak or other malfunction that could reasonably result in excess particulate emissions; and

*****

(g) In approving the site-specific monitoring plan required in paragraph (e)(4) of this section, the Administrator or delegated authority may allow owners or operators more than 24 hours to alleviate specific conditions that cause an alarm if the owner or operator identifies the condition that could lead to an alarm in the monitoring plan, adequately explains why it is not feasible to alleviate the condition within 24 hours of the time the alarm occurred, and demonstrates that the requested additional time will ensure alleviation of the condition as expeditiously as practicable.

14. Section 60.274a is amended by revising paragraphs (b) through (h) to read as follows:

§60.274a Monitoring of operations.

* * * * *

(b) Except as provided under paragraph (e) of this section, the owner or operator subject to the provisions of this subpart shall:

(1) Monitor and record on a continuous basis the rolling 15-minute average furnace static pressure (if a DEC system is in use, and a furnace static pressure gauge is installed according to paragraph (f) of this section) and either:

(i) Install, calibrate, and maintain a monitoring device that continuously records the capture system fan motor amperes and damper position(s);

(ii) Install, calibrate, and maintain a monitoring device that continuously records on a rolling 15-minute average basis either the volumetric flow rate through each separately ducted hood; or

(iii) Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet continuously record damper positions(s).

(2) The volumetric flow monitoring device(s) may be installed in any appropriate location in the capture system such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of ±10 percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The Administrator may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to EPA Methods 1 and 2 of appendix A of this part.

(3) Parameters monitored pursuant to this paragraph, excluding damper position, shall be recorded on a rolling averaging period not to exceed 15 minutes.

(c) When the owner or operator of an affected facility is required to demonstrate compliance with the standards under §60.272a(a)(3) and at any other time that the Administrator may require (under section 114 of the CAA, as amended), the owner or operator shall determine during periods in which a hood is operated for the purpose of capturing emissions from the affected facility subject to paragraph (b) of this section, all damper positions and either the:

(1) Monitor and record the fan motor amperes at each damper position, and damper position consistent with paragraph (h)(5) of this section;

(2) Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or

(3) Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and monitor and record the damper position consistent with paragraph (h)(5) of this section.

(4) Parameters monitored pursuant to this paragraph, excluding damper position, shall be

recorded on a rolling averaging period not to exceed 15 minutes.

(5) The owner or operator may petition the Administrator or delegated authority for reestablishment of these parameters whenever the owner or operator can demonstrate to the Administrator's or delegated authority's satisfaction that the affected facility operating conditions upon which the parameters were previously established are no longer applicable. The values of the parameters as determined during the most recent demonstration of compliance shall be the appropriate operational range or control set point throughout each applicable period. Operation at values beyond the accepted operational range or control set point may be subject to the requirements of §60.276a(c).

(d) Except as provided under paragraph (e) of this section, the owner or operator shall perform monthly operational status inspections of the equipment that is important to the performance of the capture system (*i.e.*, pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (*e.g.*, presence of holes in ductwork or hoods, flow constrictions caused by dents or excess accumulations of dust in ductwork, and fan erosion) and building inspections to ensure that the building does not have any holes or other openings for particulate matter laden air to escape. Any deficiencies that are determined by the operator to materially impact the efficacy of the capture system shall be noted and proper maintenance performed.

(e) The owner or operator may petition the Administrator or delegated authority to approve any alternative to either the monitoring requirements specified in paragraph (b) of this section or the monthly operational status inspections specified in paragraph (d) of this section if the alternative will provide a continuous record of operation of each emission capture system.

(f) Except as provided for under §60.273a(d), if emissions during any phase of the heat cycle are controlled by the use of a DEC system, the owner or operator shall install, calibrate, and maintain a monitoring device that allows the pressure in the free space inside the EAF to be monitored. The pressure shall be recorded as no greater than 15-minute integrated block

averages. The monitoring device may be installed in any appropriate location in the EAF or DEC duct prior to the introduction of ambient air such that reproducible results will be obtained. The pressure monitoring device shall have an accuracy of ±5 mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(g) Except as provided for under §60.273a(d), when the owner or operator of an EAF controlled by a DEC is required to demonstrate compliance with the standard under §60.272a(a)(3), and at any other time the Administrator may require (under section 114 of the Clean Air Act, as amended), the pressure in the free space inside the furnace shall be determined during the melting and refining period(s) using the monitoring device required under paragraph (f) of this section. The owner or operator may petition the Administrator or delegated authority for reestablishment of the pressure whenever the owner or operator can demonstrate to the Administrator's or delegated authority's satisfaction that the EAF operating conditions upon which the pressures were previously established are no longer applicable. The pressure range or control setting during the most recent demonstration of compliance shall be maintained at all times when the EAF is operating in a melting and refining period. Continuous operation at pressures higher than the operational range or control setting may be considered by the Administrator or delegated authority to be unacceptable operation and maintenance of the affected facility.

(h) During any performance test required under § 60.8, and for any report thereof required by § 60.276a(f) of this subpart, or to determine compliance with § 60.272a(a)(3) of this subpart, the owner or operator shall monitor the following information for all heats covered by the test:

(1) Charge weights and materials, and tap weights and materials;

(2) Heat times, including start and stop times, and a log of process operation, including periods of no operation during testing and, if a furnace static pressure monitoring device is operated pursuant to paragraph (f) of this section, the pressure inside an EAF when DEC systems

are used;

(3) Control device operation log;

(4) Continuous opacity monitor or EPA Method 9 data, or, as an alternative to EPA Method 9, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271;

(5) All damper positions, no less frequently than performed in the latest melt shop opacity compliance test for a full heat, if selected as a method to demonstrate compliance under paragraph (b) of this section;

(6) Fan motor amperes at each damper position, if selected as a method to demonstrate compliance under paragraph (b) of this section;

(7) Volumetric air flow rate through each separately ducted hood, if selected as a method to demonstrate compliance under paragraph (b) of this section; and

(8) Static pressure at each separately ducted hood, if selected as a method to demonstrate compliance under paragraph (b) of this section.

(9) Parameters monitored pursuant to paragraphs (h)(6) through (8) of this section shall be recorded on a rolling averaging period not to exceed 15 minutes.

15. Section 60.275a is amended by:

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

b. Adding paragraph (b)(3);

c. Revising paragraphs (c) and (e);

d. Removing paragraph (h);

e. Redesignating paragraphs (i) and (j) as paragraphs (h) and (i) and revising the newly redesignated paragraph (h).

The revisions and addition read as follows:

§60.275a Test methods and procedures.

(a) During performance tests required in §60.8, the owner or operator shall not add

gaseous diluents to the effluent gas stream after the fabric filter in any pressurized fabric filter collector, unless the amount of dilution is separately determined and considered in the determination of emissions.

(b) * * *

(2) Use a method that is acceptable to the Administrator or delegated authority and that compensates for the emissions from the facilities not subject to the provisions of this subpart.

(3) Any combination of the criteria of paragraphs (b)(1) and (b)(2) of this section.

(c) When emission from any EAF(s) or AOD vessel(s) are combined with emissions from facilities not subject to the provisions of this subpart, compliance with §60.272a(a)(3) will be based on emissions from only the affected facility(ies). The owner or operator may use operational knowledge to determine the facilities that are the sources, in whole or in part, of any emissions observed in demonstrations of compliance with §60.272a(a)(3).

* * * * *

(e) The owner or operator shall determine compliance with the particulate matter standards in § 60.272a as follows:

(1) EPA Method 5 (and referenced EPA Methods 1, 2, 3, 3A, 3B, and 4) shall be used for negative-pressure fabric filters and other types of control devices and EPA Method 5D (and referenced EPA Method 5) shall be used for positive-pressure fabric filters to determine the particulate matter concentration and volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least 4 hours and 4.50 dscm (160 dscf) and, when a single EAF or AOD vessel is sampled, the sampling time shall include an integral number of heats. The manual portions only and not the instrumental portion of the voluntary consensus standard ANSI/ASME PTC 19.10-1981 (incorporated by reference, see §60.17) is an acceptable alternative to EPA Methods 3, 3A, and 3B.

(2) When more than one control device serves the EAF(s) being tested, the concentration of particulate matter shall be determined using the following equation:

$$c_{st} = \left[\sum_{i=1}^{n} (c_{si} Q_{sdi}) \right] / \sum_{i=1}^{n} Q_{sdi}$$

where:

c_{st} = average concentration of particulate matter, mg/dscm (gr/dscf).

c_{si} = concentration of particulate matter from control device "i", mg/dscm (gr/dscf).

n = total number of control devices tested.

Q_{sdi} = volumetric flow rate of stack gas from control device "i", dscm/hr (dscf/hr).

(3) EPA Method 9 or, as an alternative, ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271, and the procedures of §60.11 shall be used to determine opacity.

(4) To demonstrate compliance with §60.272a(a) (1), (2), and (3), the EPA Method 9 test runs shall be conducted concurrently with the particulate matter test runs, unless inclement weather interferes.

* * * * *

(h) Where emissions from any EAF(s) or AOD vessel(s) are combined with emissions from facilities not subject to the provisions of this subpart, determinations of compliance with §60.272a(a)(3) will only be based upon emissions originating from the affected facility(ies), except if the combined emissions are controlled by a common capture system and control device, in which case the owner or operator may use any of the following procedures during an opacity performance test and during shop opacity observations:

(1) Base compliance on control of the combined emissions; or

(2) Utilize a method acceptable to the Administrator that compensates for the emissions from the facilities not subject to the provisions of this subpart.

(i) Unless the presence of inclement weather makes concurrent testing infeasible, the

owner or operator shall conduct concurrently the performance tests required under §60.8 to demonstrate compliance with §60.272a(a) (1), (2), and (3) of this subpart.

16. Section 60.276a is amended by:

a. Revising paragraphs (a) through (c), (e), (f) introductory text, (f)(3) and (4), (6)(iv), (10), (g), and (h)(3); and

b. Adding new paragraphs (i) through (m).

The revisions and additions read as follows:

§60.276a Recordkeeping and reporting requirements.

(a) Records of the measurements required in §60.274a must be retained for at least 5 years following the date of the measurement.

(b) Each owner or operator shall submit a written report of exceedances of the control device opacity to the Administrator or delegated authority semi-annually. For the purposes of these reports, exceedances are defined as all 6-minute periods during which the average opacity of emissions from the control device is 3 percent or greater.

(c) Continuous operation at a furnace static pressure that exceeds the operational range or control setting under §60.274a(g), for owners and operators that elect to install a furnace static pressure monitoring device under §60.274a(f) or operation at flow rates lower than those established under §60.274a(c) may be considered by the Administrator or delegated authority to be unacceptable operation and maintenance of the affected facility. Operation at such values shall be reported to the Administrator or delegated authority semiannually.

* * * * *

(e) When the owner or operator of an EAF or AOD is required to demonstrate compliance with the standard under §60.275a(b)(2) or a combination of §60.275a(b)(1) and (b)(2) the owner or operator shall provide notice to the Administrator or delegated authority of the procedure(s) that will be used to determine compliance. Notification of the procedure(s) to be used must be postmarked at least 30 days prior to the performance test.

(f) For the purpose of this subpart, the owner or operator shall conduct the demonstration of compliance with §60.272a(a) of this subpart and furnish the Administrator or delegated authority with a written report of the results of the test. This report shall include the following information:

* * * * *

(3) Make and model of the control device, and continuous opacity monitoring equipment, if applicable;

(4) Flow diagram of process and emission capture system including other equipment or process(es) ducted to the same control device;

* * * * *

(6) * * *

(iv) Continuous opacity monitor or EPA Method 9 data, or, as an alternative to EPA Method 9, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271.

* * * * *

(10) Test observers from any outside agency;

* * * * *

(g) The owner or operator shall maintain records of all shop opacity observations made in accordance with §60.273a(d). All shop opacity observations in excess of the emission limit specified in §60.272a(a)(3) of this subpart shall indicate a period of excess emissions and shall be reported to the Administrator or delegated authority semi-annually, according to §60.7(c) and submitted according to paragraph (j) of this section. In addition to the information required at §60.7(c), the report shall include the following information:

(1) The company name and address of the affected facility.

(2) An identification of each affected facility being included in the report.

(3) Beginning and ending dates of the reporting period.

(4) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(h) * * *

(3) An identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 24 hours of the alarm.

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

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

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

(3) Confidential business information (CBI). Do not use CEDRI to submit information

you claim as CBI. Anything submitted using CEDRI cannot later be claimed CBI. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim for some of the information submitted under paragraph (i)(1) or (2) of this section, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated using the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. The preferred method to submit 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 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, submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in paragraphs (i)(1) and (2) of this section. All CBI claims must be asserted at the time of submission. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available.

(j) You must submit a report of excess emissions and monitoring systems performance report according to §60.7(c) to the Administrator semiannually. Submit all reports to the EPA via CEDRI, which can be accessed through the EPA's CDX (https://cdx.epa.gov/). The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as CBI. Anything submitted using

CEDRI cannot later be claimed CBI. You must use the appropriate electronic report template on the CEDRI website (https://www.epa.gov/electronic-reporting-air-emissions/cedri) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim, follow paragraph (i)(3) of this section except send to the attention of the Electric Arc Furnace Sector Lead. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph (j). All CBI claims must be asserted at the time of submission. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available.

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

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

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

(3) The outage may be planned or unplanned.

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

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

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

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

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

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

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

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

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

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

(2) You must submit notification to the Administrator in writing as soon as possible

following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(3) You must provide to the Administrator:

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

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

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

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

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

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

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

17. Add subpart AAb to part 60 to read as follows:

Subpart AAb – Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarbonization Vessels Constructed After May 16, 2022

Sec.

§60.270b Applicability and designation of affected facility.
§60.271b Definitions
§60.272b Standard for particulate matter.
§60.273b Emission monitoring
§60.274b Monitoring of operations
§60.275b Test methods and procedures.
§60.276b Recordkeeping and reporting requirements.

§60.270b Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities in steel plants that produce carbon, alloy, or specialty steels: electric arc furnaces (EAF), argon-oxygen decarburization (AOD) vessels, and dust-handling systems.

(b) The provisions of this subpart apply to each affected facility identified in paragraph (a) of this section that commences construction, modification, or reconstruction after May 16, 2022.

§60.271b Definitions

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

Argon-oxygen decarburization vessel (AOD vessel) means any closed-bottom, refractory-lined converter vessel with submerged tuyeres through which gaseous mixtures containing argon and oxygen or nitrogen may be blown into molten steel for further refining.

Bag leak detection system means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other conditions that result in increases in particulate loadings. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, electrodynamic, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

Capture system means the equipment (including ducts, hoods, fans, dampers, etc.) used to capture particulate matter generated by the operation of an electric arc furnace (EAF) or AOD vessel and transport captured particulate matter to the air pollution control device.

Charge means the addition of iron and steel scrap or other materials into the shell of an EAF or the addition of molten steel or other materials into the top of an AOD vessel.

Charging period means the time period when iron and steel scrap or other materials are added into the top of an EAF until the melting and refining period commences.

Control device means the air pollution control equipment used to remove particulate matter from the effluent gas stream generated by an EAF or AOD vessel.

Damper means any device used to open, close or throttle a DEC system or hood designed to capture emissions from an EAF or AOD vessel and route them to the associated control device(s). It does not include isolation dampers used to isolate a fan or baghouse compartment for repair or cleaning, or dampers controlling collection of emissions from equipment other than an EAF or AOD vessel.

Direct-shell evacuation control system (DEC system) means a system that designed to create and maintain a negative pressure within the EAF shell during melting and refining, and transports emissions to the control device.

Dust-handling system means equipment used to handle particulate matter collected by the control device for an EAF or AOD vessel subject to this subpart. For the purposes of this subpart, the dust-handling system shall consist of the control device dust hoppers, the dust-conveying equipment, any silo, dust storage equipment, the dust-treating equipment (*e.g.*, pug mill, pelletizer), dust transfer equipment (including, but not limited to transfers from a silo to a truck or rail car), and any secondary control devices used with the dust transfer equipment.

Electric arc furnace (EAF) means a furnace that produces molten steel and heats the charge materials with electricity using carbon electrodes. For the purposes of this subpart, an EAF shall consist of the furnace shell and roof and the transformer. Furnaces that continuously feed direct-reduced iron ore pellets as the primary source of iron are not affected facilities within the scope of this definition.

Electric arc furnace facility means the EAF(s) or AOD(s) subject to this rule and the air pollution control equipment used to remove particulate matter from the effluent gas stream generated by the EAF(s) or AOD(s).

Furnace static pressure means the pressure exerted by the flow of air at the walls of the furnace, perpendicular to the flow, measured using a manometer or equivalent device to

determine pressure inside an EAF when DEC systems are used or pressure in the free space inside the EAF.

Heat cycle means the period beginning when scrap is charged to an EAF shell and ending when the EAF tap is completed or beginning when molten steel is charged to an AOD vessel and ending when the AOD vessel tap is completed.

Melting means that phase of steel production cycle during which the iron and steel scrap is heated to the molten state.

Melting and refining period means the time period commencing at the initial energizing of the electrode to begin the melting process and ending at the initiation of the tapping period, excluding any intermediate times when the electrodes are not energized as part of the melting process.

Modified facility means any physical or operational change to an existing facility which results in an increase in the emission rate (in kilograms per hour) to the atmosphere of any pollutant to which a standard applies. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere. See §60.14.

Negative-pressure fabric filter means a fabric filter with the fans on the downstream side of the filter bags.

Positive-pressure fabric filter means a fabric filter with the fans on the upstream side of the filter bags.

Reconstructed facility means an existing facility which upon reconstruction becomes an affected facility, irrespective of any change in emission rate, due to the replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, where “fixed capital cost” means the capital needed to provide all the depreciable components, and it is technologically and economically feasible to meet the

applicable standards set forth in this subpart after reconstruction.

Refining means that phase of the steel production cycle during which impurities are removed from the molten steel and alloys are added to reach the final metal chemistry.

Shop means the building that houses one or more EAF's or AOD vessels and serves as the point from which compliance with §60.272b(a)(3), "Standard for Particulate Matter," is measured.

Shop opacity means the arithmetic average of 24 observations of the opacity of any EAF or AOD emissions emanating from, and not within, the shop, during melting and refining, and during tapping, taken in accordance with EPA Method 9 of appendix A of this part, and during charging, according to the procedures in section 2.5 of Method 9 in appendix A to part 60 of this chapter, with the modification to determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals. For the daily opacity observation during melting and refining, during charging, and during tapping, facilities may measure opacity by EPA Method 22 of appendix A of this part, modified to require the recording of the aggregate duration of visible emissions at 15 second intervals. Alternatively, ASTM D7520-16 (incorporated by reference, see §60.17), may be used with the following five conditions:

(1) During the digital camera opacity technique (DCOT) certification procedure outlined in Section 9.2 of ASTM D7520-16 (incorporated by reference, see §60.17), the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand);

(2) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16 (incorporated by reference, see §60.17);

(3) The owner or operator must follow the recordkeeping procedures outlined in §60.7(f)

for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination;

(4) The owner or operator or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15 percent opacity of anyone reading and the average error must not exceed 7.5 percent opacity;

(5) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 (incorporated by reference, see §60.17) and these requirements is on the facility, DCOT operator, and DCOT vendor.

Static pressure means the pressure exerted by the flow of air at the furnace walls, perpendicular to the flow, measured using a manometer or equivalent device. This refers to either furnace static pressure, or static pressure in air ducts, or pressure in the EAF capture system, *i.e.*, static pressure at each separately ducted hood]

Tap means the pouring of molten steel from an EAF or AOD vessel.

Tapping period means the time period commencing at the moment an EAF begins to pour molten steel and ending either three minutes after steel ceases to flow from an EAF, or six minutes after steel begins to flow, whichever is longer.

§60.272b Standard for particulate matter.

(a) On and after the date of which the performance tests required to be conducted by §60.8 or §60.272b(d) are completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from an EAF or an AOD vessel any gases which:

(1) Exit from control devices at the facility and contain particulate matter as a total for the facility in excess of 79 mg/kg steel produced (0.16 lb/ton steel produced) for the facility;

(2) Exit from a control device and exhibit 3 percent opacity or greater, as measured in accordance with EPA Method 9 of appendix A of this part, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271; and

(3) Exit from a shop and, due solely to the operations of any affected EAF(s) or AOD vessel(s) during melting and refining exhibit greater than 0 percent opacity, and during charging exhibit greater than 6 percent opacity, as measured in accordance with EPA Method 9 of appendix A of this part, and during charging, exhibit greater than 6 percent opacity, as measured according to the procedures in section 2.5 of Method 9 in appendix A to part 60 of this chapter, with the modification of this section of Method 9 to determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals; or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271 or, for the daily opacity observations, exhibit 0 seconds of visible emissions as measured by EPA Method 22 of appendix A of this part, modified to require the recording of the aggregate duration of visible emissions at 15 second intervals. Shop opacity shall be recorded for any point(s) during melting and refining, during charging, and during tapping where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of visible emissions during melting and refining, during charging, or during tapping, only one observation of shop opacity or visible emissions will be required during melting and refining, during charging, or during tapping. In this case, the shop opacity or visible emissions observations must be made for the point of highest emissions during melting and refining, during charging, or during tapping that directly relates to the cause (or location) of visible emissions observed during a single incident.

(b) On and after the date on which the performance tests required to be conducted by §60.8 or §60.272b(d) are completed, no owner or operator subject to the provisions of this

subpart shall cause to be discharged into the atmosphere from the dust-handling system any gases that exhibit 10 percent opacity or greater, as measured in accordance with EPA Method 9 of appendix A of this part, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271.

(c) The standards in paragraphs (a) and (b) apply at all times. The exemptions to opacity standards under §60.11(c) do not apply to this subpart. As provided in §60.11(f), this provision supersedes the exemptions for periods of startup, shutdown and malfunction in the Part 60 general provisions in Subpart A.

(d) Performance tests required to be conducted to show compliance with the standards in paragraph (a) of this section shall be repeated at least every 5 years after the performance tests required by §60.8 are conducted.

§60.273b Emission monitoring

(a) Except as provided under paragraphs (b) and (c) of this section, a continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the control device(s) shall be installed, calibrated, maintained, and operated by the owner or operator subject to the provisions of this subpart.

(b) No continuous monitoring system shall be required on any control device serving the dust-handling system.

(c) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the control device(s) is not required on any modular, multi-stack, negative-pressure or positive-pressure fabric filter or on any single-stack fabric filter if observations of the opacity of the visible emissions from the control device are performed by a certified visible emission observer and the owner installs and operates a bag leak detection system according to paragraph (e) of this section whenever the control device is being used to remove particulate matter from the EAF or AOD. Visible emission observations shall be conducted at least once per day on the control device for at least three 6-minute periods when the

furnace is operating in the melting and refining period. All visible emissions observations shall be conducted in accordance with EPA Method 9, or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271. If visible emissions occur from more than one point, the opacity shall be recorded for any points where visible emissions are observed. Where it is possible to determine that a number of visible emission points relate to only one incident of the visible emission, only one set of three 6-minute observations will be required. In that case, the EPA Method 9 observations must be made for the point of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in §60.272b(a)(2).

(d) A furnace static pressure monitoring device is not required on any EAF equipped with a DEC system if observations of shop opacity are performed by a certified visible emission observer as follows:

(1) At least once per day when the furnace is operating.

(2) No less than once per week, commencing from the tap of one EAF heat cycle to the tap of the following heat cycle. A melt shop with more than one EAF shall conduct these readings while both EAFs are in operation. Both EAFs are not required to be on the same schedule for tapping.

(3) Shop opacity shall be determined as the arithmetic average of 24 consecutive 15-second opacity observations of emissions from the shop taken in accordance with EPA Method 9 during melting and refining and during tapping; and during charging determined according to the procedures in section 2.5 of Method 9 in appendix A to part 60 of this chapter, with the modification to determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals; or, as an alternative, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271, or as the total duration of visible emissions measured according to EPA

Method 22 over a six minute period, modified to require the recording of the aggregate duration of visible emissions at 15 second intervals. Shop opacity shall be recorded for any point(s) where visible emissions are observed. Where it is possible to determine that a number of visible emission points relate to only one incident of visible emissions, only one observation of shop opacity will be required. In this case, the shop opacity observations must be made for the point of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Shop opacity shall be determined daily during melting and refining, during charging, and during tapping.

(e) A bag leak detection system must be installed on all fabric filters and operated on all single-stack fabric filters whenever the control device is being used to remove particulate matter from the EAF or AOD vessel if the owner or operator elects not to install and operate a continuous opacity monitoring system as provided for under paragraph (c) of this section. In addition, the owner or operator shall meet the visible emissions observation requirements in paragraph (c) of this section. The bag leak detection system must meet the specifications and requirements of paragraphs (e)(1) through (8) of this section.

(1) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at a concentrations of 1 milligram per actual cubic meter (0.00044 grains per actual cubic foot) or less.

(2) The bag leak detection system sensor must provide output of relative particulate matter loadings and the owner or operator shall continuously record the output from the bag leak detection system using electronic or other means (*e.g.,* using a strip chart recorder or a data logger.)

(3) The bag leak detection system must be equipped with an alarm system that will activate when an increase in relative particulate loading is detected over the alarm set point established according to paragraph (e)(4) of this section, and the alarm must be located such that it can be identified by the appropriate plant personnel.

(4) For each bag leak detection system required by paragraph (e) of this section, the owner or operator shall develop and submit to the Administrator or delegated authority, for approval, a site-specific monitoring plan that addresses the items identified in paragraphs (i) through (v) of this paragraph (e)(4). For each bag leak detection system that operates based on the triboelectric effect, the monitoring plan shall be consistent with the recommendations contained in EPA-454/R-98-015, "Fabric Filter Bag Leak Detection Guidance" (incorporated by reference, see §60.17). The owner or operator shall operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. The plan shall describe the following:

(i) Installation of the bag leak detection system;

(ii) Initial and periodic adjustment of the bag leak detection system including how the alarm set-point will be established;

(iii) Operation of the bag leak detection system including quality assurance procedures;

(iv) How the bag leak detection system will be maintained including a routine maintenance schedule and spare parts inventory list; and

(v) How the bag leak detection system output shall be recorded and stored.

(5) The initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time (if applicable).

(6) Following initial adjustment, the owner or operator shall not adjust the averaging period, alarm set point, or alarm delay time without approval from the Administrator or delegated authority except as provided for in paragraphs (e)(6)(i) and (ii) of this section.

(i) Once per quarter, the owner or operator may adjust the sensitivity of the bag leak detection system to account for seasonal effects including temperature and humidity according to the procedures identified in the site-specific monitoring plan required under paragraph (e)(4) of this section.

(ii) If opacities greater than 0 percent are observed over four consecutive 15-second observations during the daily opacity observations required under paragraph (c) of this section and the alarm on the bag leak detection system alarm is not activated, the owner or operator shall lower the alarm set point on the bag leak detection system to a point where the alarm would have been activated during the period when the opacity observations were made.

(7) For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detection sensor must be installed downstream of the baghouse or upstream of any wet scrubber.

(8) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(f) For each bag leak detection system installed according to paragraph (e) of this section, the owner or operator shall initiate procedures to determine the cause of all alarms within 1 hour of an alarm. The cause of the alarm must be alleviated within 24 hours of the time the alarm occurred by taking whatever response action(s) are necessary. Response actions may include, but are not limited to, the following:

(1) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may have caused an increase in particulate emissions;

(2) Sealing off defective bags or filter media;

(3) Replacing defective bags or filter media or otherwise repairing the control device;

(4) Sealing off a defective baghouse compartment;

(5) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system;

(6) Establishing to the extent acceptable by the delegated authority that the alarm was a false alarm and not caused by a bag leak or other malfunction that could reasonably result in excess particulate emissions; and

(7) Shutting down the process producing the particulate emissions.

(g) In approving the site-specific monitoring plan required in paragraph (e)(4) of this section, the Administrator or delegated authority may allow owners or operators more than 24 hours to alleviate specific conditions that cause an alarm if the owner or operator identifies the condition that could lead to an alarm in the monitoring plan, adequately explains why it is not feasible to alleviate the condition within 24 hours of the time the alarm occurred, and demonstrates that the requested additional time will ensure alleviation of the condition as expeditiously as practicable.

§60.274b Monitoring of operations

(a) The owner or operator subject to the provisions of this subpart shall maintain records of the following information:

(1) All data obtained under paragraph (b) of this section; and

(2) All monthly operational status inspections performed under paragraph (c) of this section.

(b) Except as provided under paragraph (e) of this section, the owner or operator subject to the provisions of this subpart shall conduct the following monitoring of the capture system to demonstrate continuous compliance:

(1) If a DEC system is in use, according to paragraph (f) of this section), monitor and record on a continuous basis the furnace static pressure and any one of (2) through (4) in this paragraph:

(2) Monitor and record the fan motor amperes at each damper position, and damper position consistent with paragraph (h)(5) of this section;

(3) Install, calibrate, and maintain a monitoring device that continuously records the volumetric air flow rate or static pressure at each separately ducted hood; or

(4) Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and monitor and record the damper position consistent with paragraph (h)(5) of this section.

(5) The static pressure monitoring device(s) shall be installed in an EAF or DEC duct prior to combining with other ducts and prior to the introduction of ambient air, at a location that has no flow disturbance due to the junctions.

(6) The volumetric flow monitoring device(s) may be installed in any appropriate location in the capture system such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of ±10 percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The Administrator may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to EPA Methods 1 and 2 of appendix A of this part.

(7) Parameters monitored pursuant to this paragraph, excluding damper position, shall be recorded on a rolling averaging period not to exceed 15 minutes.

(c) When the owner or operator of an affected facility is required to demonstrate compliance with the standards under §60.272b(a)(3) and at any other time that the Administrator may require (under section 114 of the CAA, as amended), the owner or operator shall determine during all periods in which a hood is operated for the purpose of capturing emissions from the affected facility subject to paragraph (b) of this section, either:

(1) Monitor and record the fan motor amperes at each damper position, and damper position consistent with paragraph (h)(5) of this section;

(2) install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or

(3) install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and monitor and record the damper position consistent with paragraph (h)(5) of this section.

(4) Parameters monitored pursuant to this paragraph, excluding damper position, shall be recorded on a rolling averaging period not to exceed 15 minutes.

(5) The owner or operator may petition the Administrator or delegated authority for

reestablishment of these parameters whenever the owner or operator can demonstrate to the Administrator's or delegated authority's satisfaction that the affected facility operating conditions upon which the parameters were previously established are no longer applicable. The values of the parameters as determined during the most recent demonstration of compliance shall be the appropriate operational range or control set point throughout each applicable period. Operation at values beyond the accepted operational range or control set point may be subject to the requirements of §60.276b(c).

(d) Except as provided under paragraph (e) of this section, the owner or operator shall perform monthly operational status inspections of the equipment that is important to the performance of the capture system (*i.e.*, pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (*e.g.*, presence of holes in ductwork or hoods, flow constrictions caused by dents or excess accumulations of dust in ductwork, and fan erosion) and building inspections to ensure that the building does not have any holes or other openings for particulate matter laden air to escape. Any deficiencies that are determined by the operator to materially impact the efficacy of the capture system shall be noted and proper maintenance performed.

(e) The owner or operator may petition the Administrator or delegated authority to approve any alternative to either the monitoring requirements specified in paragraph (b) of this section or the monthly operational status inspections specified in paragraph (d) of this section if the alternative will provide a continuous record of operation of each emission capture system.

(f) Except as provided under § 60.273b(d), if emissions during any phase of the heat cycle are controlled by the use of a DEC system, the owner or operator shall install, calibrate, and maintain a monitoring device that allows the pressure in the free space inside the EAF to be monitored. The pressure shall be recorded as no greater than 15-minute integrated block averages. The monitoring device may be installed in any appropriate location in the EAF or DEC duct prior to the introduction of ambient air such that reproducible results will be obtained. The

pressure monitoring device shall have an accuracy of ±5 mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(g) When the owner or operator of an EAF controlled by a DEC is required to demonstrate compliance with the standard under §60.272b(a)(3), and at any other time the Administrator may require (under section 114 of the Clean Air Act, as amended), the pressure in the free space inside the furnace shall be determined during the melting and refining period(s) using the monitoring device required under paragraph (f) of this section. The owner or operator may petition the Administrator or delegated authority for reestablishment of the pressure whenever the owner or operator can demonstrate to the Administrator's or delegated authority's satisfaction that the EAF operating conditions upon which the pressures were previously established are no longer applicable. The pressure range or control setting during the most recent demonstration of compliance shall be maintained at all times when the EAF is operating in a melting and refining period. Continuous operation at pressures higher than the operational range or control setting may be considered by the Administrator or delegated authority to be unacceptable operation and maintenance of the affected facility.

(h) During any performance test required under §60.8 or §60.272b(d), and for any report thereof required by §60.276b(f) of this subpart, or to determine compliance with §60.272b(a)(3) of this subpart, the owner or operator shall monitor the following information for all heats covered by the test:

(1) Charge weights and materials, and tap weights and materials;

(2) Heat times, including start and stop times, and a log of process operation, including periods of no operation during testing and, if a furnace static pressure monitoring device is operated pursuant to paragraph (f) of this section, the pressure inside an EAF when DEC systems are used;

(3) Control device operation log;

(4) Continuous opacity monitor (COM) or EPA Method 9 data, or, as an alternative to

EPA Method 9, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271;

(5) All damper positions, no less frequently than performed in the latest melt shop opacity compliance test for a full heat, if selected as a method to demonstrate compliance under paragraph (b) of this section;

(6) Fan motor amperes at each damper position, if selected as a method to demonstrate compliance under paragraph (b) of this section;

(7) Volumetric air flow rate through each separately ducted hood, if selected as a method to demonstrate compliance under paragraph (b) of this section; and

(8) Static pressure at each separately ducted hood, if selected as a method to demonstrate compliance under paragraph (b) of this section.

(9) Parameters monitored pursuant to paragraphs (h)(6)-(8) of this section shall be recorded on a rolling averaging period not to exceed 15 minutes.

§60.275b Test methods and procedures.

(a) During performance tests required in §§60.8 and 60.272b(d), the owner or operator shall not add gaseous diluents to the effluent gas stream after the fabric filter in any pressurized fabric filter collector, unless the amount of dilution is separately determined and considered in the determination of emissions.

(b) When emissions from any EAF(s) or AOD vessel(s) are combined with emissions from facilities not subject to the provisions of this subpart but controlled by a common capture system and control device, the owner or operator shall use any one of the following procedures during a performance test (see also §60.276b(e)):

(1) Determine compliance using the combined emissions.

(2) Use a method that is acceptable to the Administrator or delegated authority and that compensates for the emissions from the facilities not subject to the provisions of this subpart.

(3) Any combination of the criteria of paragraphs (b)(1) and (2) of this section.

(c) When emission from any EAF(s) or AOD vessel(s) are combined with emissions from facilities not subject to the provisions of this subpart, compliance with §60.272b(a)(3) will be based on emissions from only the affected facility(ies). The owner or operator may use operational knowledge to determine the facilities that are the sources, in whole or in part, of any emissions observed in demonstrations of compliance with §60.272b(a)(3).

(d) In conducting the performance tests required in §§60.8 and 60.272b(d), the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(e) The owner or operator shall determine compliance with the particulate matter standards in §60.272b as follows:

(1) EPA Method 5 (and referenced EPA Methods 1, 2, 3, 3A, 3B, and 4) shall be used for negative-pressure fabric filters and other types of control devices and EPA Method 5D (and referenced EPA Method 5) shall be used for positive-pressure fabric filters to determine the particulate matter concentration and volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least 4 hours and 4.50 dry standard cubic meter (160 dry standard cubic feet) and, when a single EAF or AOD vessel is sampled, the sampling time shall include an integral number of heats. The manual portions only (not the instrumental portion) of the voluntary consensus standard ANSI/ASME PTC 19.10-1981 (incorporated by reference, see § 60.17) are acceptable alternatives to EPA Methods 3, 3A, and 3B.

(2) When more than one control device serves the EAF(s) being tested, the concentration of particulate matter shall be determined using the following equation:

$$E_{sf} = \sum_{i=1}^{n} \left(\frac{R_{si}}{P_i} \right)$$

where:

E_{sf} = average emission rate of particulate matter, mg/kg (lb/ton).

R_{si} = emission rate of particulate matter from control device “i”, mg/hr (lb/hr).

n = total number of control devices at the facility.

P_i = steel production rate during testing of control device “i”, kg/hr (ton/hr).

(3) EPA Method 9 or, as an alternative, ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271, and the procedures of §60.11 shall be used to determine opacity.

(4) To demonstrate compliance with §60.272b(a) (1), (2), and (3), the EPA Method 9 test runs shall be conducted concurrently with the particulate matter test runs, unless inclement weather interferes.

(f) To comply with §60.274b(c), (f), (g), and (h), the owner or operator shall obtain the information required in these paragraphs during the particulate matter runs.

(g) Any control device subject to the provisions of the subpart shall be designed and constructed to allow measurement of emissions using applicable test methods and procedures.

(h) Where emissions from any EAF(s) or AOD vessel(s) are combined with emissions from facilities not subject to the provisions of this subpart, determinations of compliance with §60.272b(a)(1), (2), and (3) will only be based upon emissions originating from the affected facility(ies), except if the combined emissions are controlled by a common capture system and control device, in which case the owner or operator may use any of the following procedures during an opacity performance test and during shop opacity observations:

(1) Base compliance on control of the combined emissions; or

(2) Utilize a method acceptable to the Administrator that compensates for the emissions from the facilities not subject to the provisions of this subpart.

(3) Any combination of the criteria of paragraphs (h)(1) and (2) of this section.

(i) Unless the presence of inclement weather makes concurrent testing infeasible, the owner or operator shall conduct concurrently the performance tests required under §60.8 or §60.272b(d) to demonstrate compliance with §60.272b(a)(1), (2), and (3) of this subpart.

§60.276b Recordkeeping and reporting requirements.

(a) Records of the measurements required in §60.274b must be retained for at least 5 years following the date of the measurement.

(b) Each owner or operator shall submit a written report of exceedances of the control device opacity to the Administrator or delegated authority semi-annually. For the purposes of these reports, exceedances are defined as all 6-minute periods during which the average opacity of emissions from the control device is 3 percent or greater or, where the daily shop opacity visible emissions were measured according to EPA Method 22 and exceeded 0 seconds.

(c) Operation at a furnace static pressure that exceeds the operational range or control setting under §60.274b(g), for owners and operators that elect to install a furnace static pressure monitoring device under 60.274b(f) or operation ranges or control settings outside of those established under §60.274b(c) may be considered by the Administrator or delegated authority to be unacceptable operation and maintenance of the affected facility. Operation at such values shall be reported to the Administrator or delegated authority semiannually.

(d) The requirements of this section remain in force until and unless EPA, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such State. In that event, affected sources within the State will be relieved of the obligation to comply with this section, provided that they comply with the requirements established by the State.

(e) When the owner or operator of an EAF or AOD is required to demonstrate compliance with the standard under §60.275b(b)(2) or a combination of (b)(1) and (b)(2) the owner or operator provide notice to the Administrator or delegated authority of the procedure(s) that will be used to determine compliance. Notification of the procedure(s) to be used must be postmarked at least 30 days prior to the performance test.

(f) For the purpose of this subpart, the owner or operator shall conduct the demonstration of compliance with §60.272b(a) of this subpart and furnish the Administrator or delegated

authority with a report of the results of the test according to paragraph (i) of this section. This report shall include the following information:

(1) Facility name and address;

(2) Plant representative;

(3) Make and model of the control device, and continuous opacity monitoring equipment, if applicable;

(4) Flow diagram of process and emission capture system including other equipment or process(es) ducted to the same control device;

(5) Rated (design) capacity of process equipment;

(6) Those data required under §60.274b(h) of this subpart;

(i) List of charge and tap weights and materials;

(ii) Heat times and process log;

(iii) Control device operation log; and

(iv) Continuous opacity monitor or EPA Method 9 data, or, as an alternative to EPA Method 9, according to ASTM D7520-16 (incorporated by reference, see §60.17), with the caveats described under *Shop opacity* in §60.271.

(7) Test dates and test times;

(8) Test company;

(9) Test company representative;

(10) Test observers from any outside agency;

(11) Description of test methodology used, including any deviation from standard reference methods;

(12) Schematic of sampling location;

(13) Number of sampling points;

(14) Description of sampling equipment;

(15) Listing of sampling equipment calibrations and procedures;

(16) Field and laboratory data sheets;

(17) Description of sample recovery procedures;

(18) Sampling equipment leak check results;

(19) Description of quality assurance procedures;

(20) Description of analytical procedures;

(21) Notation of sample blank corrections; and

(22) Sample emission calculations.

(g) The owner or operator shall maintain records of all shop opacity observations made in accordance with §60.273b(d). All shop opacity observations in excess of the emission limit specified in §60.272b(a)(3) of this subpart shall indicate a period of excess emissions and shall be reported to the Administrator or delegated authority semi-annually, according to §60.7(c) and submitted according to paragraph (j) of this section. In addition to the information required at §60.7(c), the report shall include the following information:

(1) The company name and address of the affected facility.

(2) An identification of each affected facility being included in the report.

(3) Beginning and ending dates of the reporting period.

(4) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(h) The owner or operator shall maintain the following records for each bag leak detection system required under §60.273b(e):

(1) Records of the bag leak detection system output;

(2) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(3) An identification of the date and time of all bag leak detection system alarms, the time

that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 24 hours of the alarm.

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

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

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

(3) Confidential business information (CBI). Do not use CEDRI to submit information you claim as CBI. Anything submitted using CEDRI cannot later be claimed CBI. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim for some of the information submitted under paragraph (i)(1) or (2) of this section, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated using the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's

ERT website. The preferred method to submit 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 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, submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in paragraphs (i)(1) and (2) of this section. All CBI claims must be asserted at the time of submission. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available.

(j) You must submit a report of excess emissions and monitoring systems performance report according to §60.7(c) to the Administrator semiannually. Submit all reports to the EPA via CEDRI, which can be accessed through the EPA's CDX (https://cdx.epa.gov/). The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as CBI. Anything submitted using CEDRI cannot later be claimed CBI. You must use the appropriate electronic report template on the CEDRI website (https://www.epa.gov/electronic-reporting-air-emissions/cedri) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. Although we do not expect persons to assert a claim of CBI, if you

wish to assert a CBI claim, follow paragraph (i)(3) of this section except send to the attention of the Electric Arc Furnace Sector Lead. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph (j). All CBI claims must be asserted at the time of submission. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available.

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

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

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

(3) The outage may be planned or unplanned.

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

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

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

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

(iii) A description of measures taken or to be taken to minimize the delay in reporting;

and

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

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

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

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

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

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

(3) You must provide to the Administrator:

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

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the

force majeure event;

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

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

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

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

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

[FR Doc. 2023-16747 Filed: 8/24/2023 8:45 am; Publication Date: 8/25/2023]